# TSV05

TSV05 CONTROL PART 3
CVTSCC0

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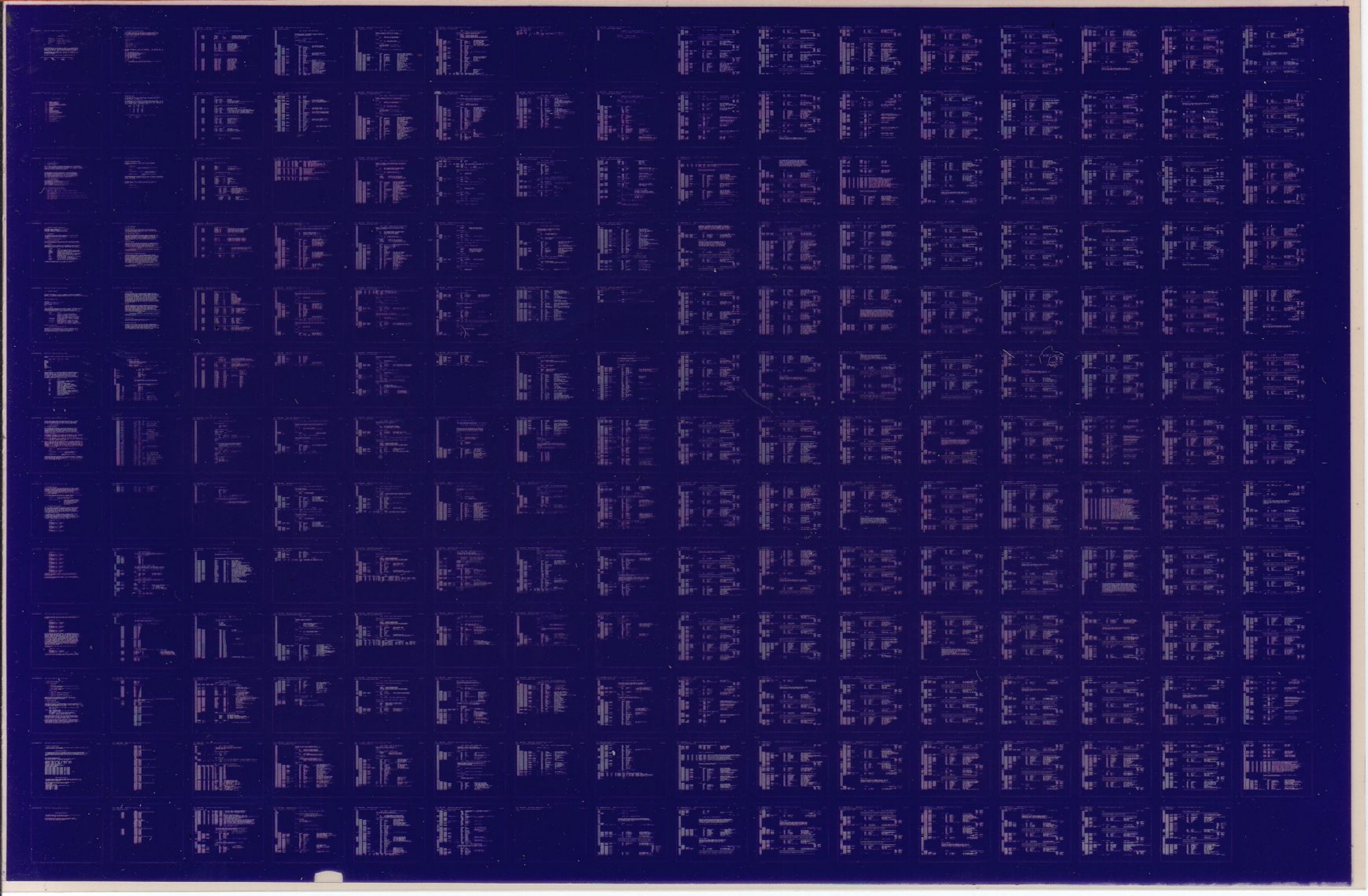

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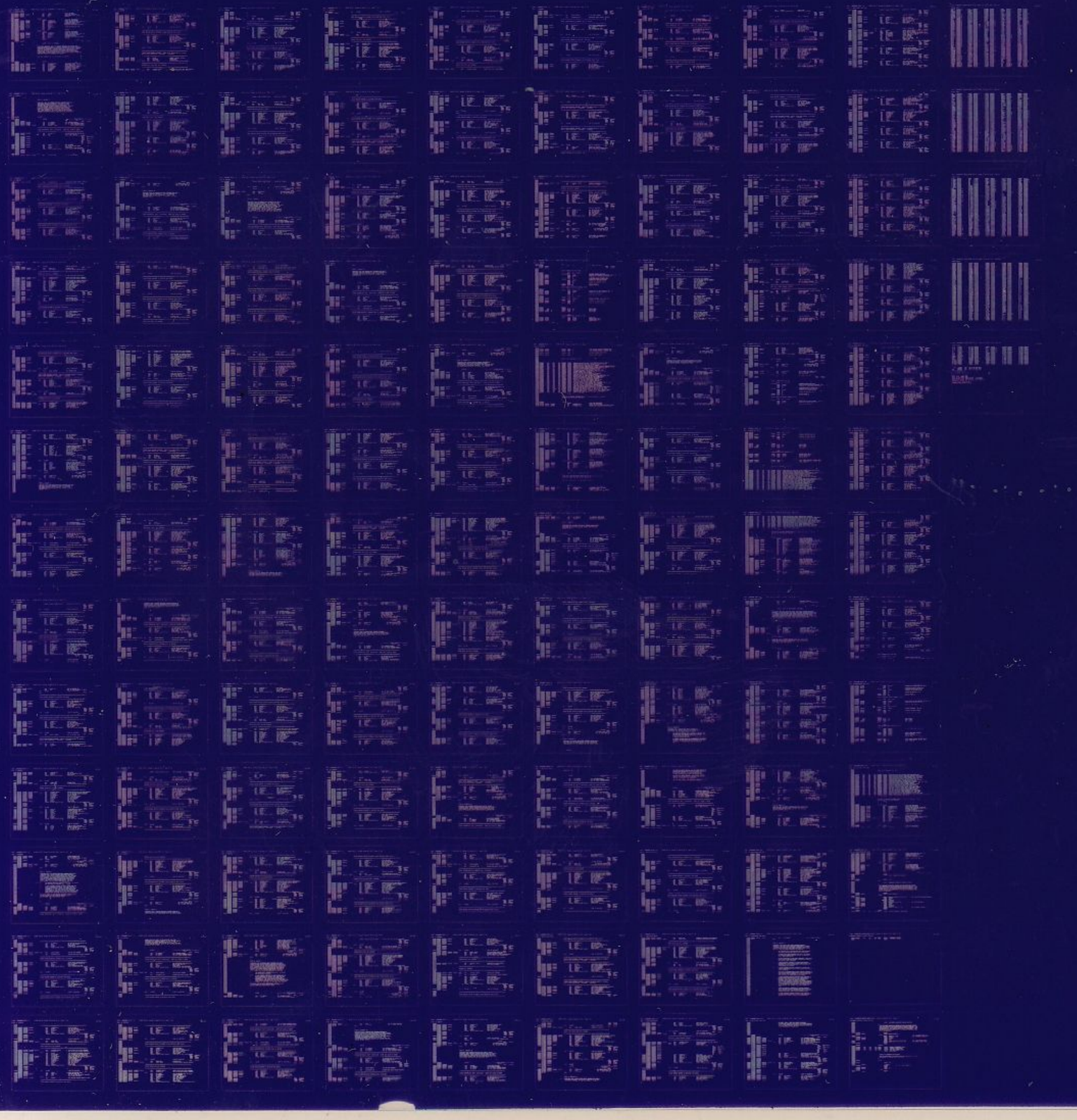

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IDENTIFICATION

PRODUCT ID: AC-T097C-MC

PRODUCT TITLE: CVTSCCO TSV05 CTRL PART 3

DEPARTMENT: COMPUTER SPECIAL SYSTEMS/PGG

DATE: AUGUST 23, 1985

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# 1.0 GENERAL INFORMATION

## 1.1 PROGRAM ABSTRACT

THIS IS A LSI-11 RESIDENT DIAGNOSTIC WHICH CHECKS THE FUNCTIONALITY OF A TSV05 MAGTAPE SUBSYSTEM WHILE CONNECTED TO A LSI-11/23 SYSTEM (QBUS). THE PROGRAM PROVIDES ERROR MESSAGES WHICH IDENTIFY FAILING FUNCTIONS THAT AID IN THE REPAIR OF THE DEVICE. THIS DIAGNOSTIC CONSIST OF EIGHT TEST WHICH ARE EXECUTED IN SEQUENCE.

THIS DIAGNOSTIC HAS BEEN WRITTEN FOR USE WITH THE DIAGNOSTIC RUNTIME SERVICES SOFTWARE (SUPERVISOR). THESE SERVICES PROVIDE THE INTERFACE TO THE OPERATOR AND TO THE SOFTWARE ENVIRONMENT. THIS PROGRAM CAN BE USED WITH XXDP+, ACT, APT, SLIDE AND PAPER TAPE. FOR A COMPLETE DESCRIPTION OF THE RUNTIME SERVICES, REFER TO THE XXDP+ USER'S MANUAL. THERE IS A BRIEF DESCRIPTION OF THE RUNTIME SERVICES IN SECTION 2 OF THIS DOCUMENT.

## 1.2 SYSTEM REQUIREMENTS

LSI-11 PROCESSOR AND MEMORY
CAUTION:DIAGNOSTIC REQUIRES 32K WORDS OF MEMORY
(28K USEABLE I.E. 4K FOR I/O PAGE)
TSV05 MAGTAPE SUBSYSTEM (DRIVE AND CONTROLLER)
CONSOLE TERMINAL
PDP-11 DIAGNOSTIC SUPERVISOR (HSAAA.SYS VERSION 34 OR LATER)
PDP-11 DIAGNOSTIC LOADER/MONITOR (XXDP+)

## 1.3 RELATED DOCUMENTS AND STANDARDS

DIGITAL EQUIPMENT CORPORATION DOCUMENTS:

1. CHQUS XXDP+ USERS MANUAL; DOCUMENT NUMBER AC-F348E-MC
   DATE: 14 JULY 1980.
2. TSV05 TRANSPORT SUBSYSTEM USER'S GUIDE; DOCUMENT NUMBER EK-TSV05-UG-001
   DATE: AUGUST 1982
3. TSV05 TRANSPORT SUBSYSTEM TECHNICAL MANUAL; DOCUMENT NUMBER EK-TSV05-TM-001
   DATE: AUGUST 1982
4. TSV05 TRANSPORT SUBSYSTEM INSTALLATION MANUAL; DOCUMENT NUMBER EK-TSV05-IN-001
   DATE: AUGUST 1982

## 1.4 DIAGNOSTIC HIERARCY PREREQUISITES

FUNCTIONAL LSI-11 CENTRAL PROCESSOR AND MEMORY
FUNCTIONAL CONSOLE TERMINAL
FUNCTIONAL STANDALONE DIAGNOSTIC SUPERVISOR
FUNCTIONAL DIAGNOSTIC LOADER/MONITOR (XXDP+)

## 1.5 ASSUMPTIONS

ALL HARDWARE EXCEPT THE HARDWARE UNDER TEST IS ASSUMED TO WORK PROPERLY OR FALSE ERRORS CAN BE REPORTED.
THE TAPE BEING USED ON THE TS05 TRANSPORT IS A KNOWN GOOD REEL OF TAPE.
CVTSAA AND CVTSBA HAVE SUCESSFULLY RUN.

## 2.0 OPERATING INSTRUCTIONS

THIS SECTION CONTAINS A BRIEF DESCRIPTION OF THE RUNTIME SERVICES. FOR DETAILED INFORMATION, REFER TO THE XXDP+ USER'S MANUAL (CHQUS).

## 2.1 COMMANDS

THERE ARE ELEVEN LEGAL COMMANDS FOR THE DIAGNOSTIC RUNTIME SERVICES (SUPERVISOR). THIS SECTION LISTS THE COMMANDS AND GIVES A VERY BRIEF DESCRIPTION OF THEM. THE XXDP+ USER'S MANUAL HAS MORE DETAILS.

| COMMAND | EFFECT |
|---|---|
| START | START THE DIAGNOSTIC FROM AN INITIAL STATE |
| RESTART | START THE DIAGNOSTIC WITHOUT INITIALIZING |
| CONTINUE | CONTINUE AT TEST THAT WAS INTERRUPTED (AFTER ↑C) |
| PROCEED | CONTINUE FROM AN ERROR HALT |
| EXIT | RETURN TO XXDP+ MONITOR (XXDP+ OPERATION ONLY!) |
| ADD | ACTIVATE A UNIT FOR TESTING (ALL UNITS ARE CONSIDERED TO BE ACTIVE AT START TIME |
| DROP | DEACTIVATE A UNIT |
| PRINT | PRINT STATISTICAL INFORMATION (IF IMPLEMENTED BY THE DIAGNOSTIC - SECTION 4.0) |
| DISPLAY | TYPE A LIST OF ALL DEVICE INFORMATION |
| FLAGS | TYPE THE STATE OF ALL FLAGS (SEE SECTION 2.3) |
| ZFLAGS | CLEAR ALL FLAGS (SEE SECTION 2.3) |

A COMMAND CAN BE RECOGNIZED BY THE FIRST THREE CHARACTERS. SO YOU MAY, FOR EXAMPLE, TYPE "STA" INSTEAD OF "START".

### 2.1.1 OPERATOR COMMANDS

THE TSV05 DIAGNOSTIC IS A LSI-11 DIAGNOSTIC SUPERVISOR COMPATIBLE PROGRAM. ALL LOADING AND RUNTIME INSTRUCTIONS CAN BE REFERENCED IN THE CHQUS XXDP+ USERS MANUAL,DOCUMENT NUMBER AC-F348E-MC. THE USER ENTRY IS IN QUOTES.

BOOT THE DIAGNOSTIC MEDIA

```
.R VTSC??
DIAG. RUN-TIME SERVICES REV D. APR 79
CVTSC-A-0
****TSV05 LOGIC DIAGNOSTIC****
UNIT IS TSV05
>DR
```

### 2.2 SWITCHES

THERE ARE SEVERAL SWITCHES WHICH ARE USED TO MODIFY SUPERVISOR OPERATION. THESE SWITCHES ARE APPENDED TO THE LEGAL COMMANDS. ALL OF THE LEGAL SWITCHES ARE TABULATED BELOW WITH A BRIEF DESCRIPTION OF EACH. IN THE DESCRIPTIONS BELOW, A DECIMAL NUMBER IS DESIGNATED BY "DDDDD".

| SWITCH | EFFECT |
|---|---|
| /TESTS:LIST | EXECUTE ONLY THOSE TESTS SPECIFIED IN THE LIST. LIST IS A STRING OF TEST NUMBERS, FOR EXAMPLE - /TESTS:1:5:7-10. THIS LIST WILL CAUSE TESTS 1,5,7,8,9,10 TO BE RUN. ALL OTHER TESTS WILL NOT BE RUN. |
| /PASS:DDDDD | EXECUTE DDDDD PASSES (DDDDD = 1 TO 64000) |
| /FLAGS:FLGS | SET SPECIFIED FLAGS. FLAGS ARE DESCRIBED IN SECTION 2.3. |
| /EOP:DDDDD | REPORT END OF PASS MESSAGE AFTER EVERY DDDDD PASSES ONLY. (DDDDD = 1 TO 64000) |
| /UNITS:LIST | TEST/ADD/DROP ONLY THOSE UNITS SPECIFIED IN THE LIST. LIST EXAMPLE - /UNITS:0:5:10-12 USE UNITS 0,5,10,11,12 (UNIT NUMBERS = 0-63) |

EXAMPLE OF SWITCH USAGE:

```
START/TESTS:1-5/PASS:1000/EOP:100
```

THE EFFECT OF THIS COMMAND WILL BE: 1) TESTS 1 THROUGH 5 WILL BE EXECUTED, 2) ALL UNITS WILL TESTED 1000 TIMES AND 3) THE END OF PASS MESSAGES WILL BE PRINTED AFTER EACH 100 PASSES ONLY. A SWITCH CAN BE RECOGNIZED BY THE FIRST THREE CHARACTERS. YOU MAY, FOR EXAMPLE, TYPE "/TES:1-5" INSTEAD OF "/TESTS:1-5".

BELOW IS A TABLE THAT SPECIFIES WHICH SWITCHES CAN BE USED BY EACH COMMAND.

| | TESTS | PASS | FLAGS | EOP | UNITS |
|---|---|---|---|---|---|
| START | X | X | X | X | X |
| RESTART | X | X | X | X | X |
| CONTINUE | | X | X | X | |
| PROCEED | | | X | | |
| DROP | | | | | X |
| ADD | | | | | X |
| PRINT | | | | | |
| DISPLAY | | | | | X |
| FLAGS | | | | | |
| ZFLAGS | | | | | |
| EXIT | | | | | |

## 2.3 FLAGS

FLAGS ARE USED TO SET UP CERTAIN OPERATIONAL PARAMETERS SUCH AS LOOPING ON ERROR. ALL FLAGS ARE CLEARED AT STARTUP AND REMAIN CLEARED UNTIL EXPLICITLY SET USING THE FLAGS SWITCH. FLAGS ARE ALSO CLEARED AFTER A START COMMAND UNLESS SET USING THE FLAG SWITCH. THE ZFLAGS COMMAND MAY ALSO BE USED TO CLEAR ALL FLAGS. WITH THE EXCEPTION OF THE START AND ZFLAGS COMMANDS, NO COMMANDS AFFECT THE STATE OF THE FLAGS; THEY REMAIN SET OR CLEARED AS SPECIFIED BY THE LAST FLAG SWITCH.

| FLAG | EFFECT |
|---|---|
| HOE | HALT ON ERROR - CONTROL IS RETURNED TO RUNTIME SERVICES COMMAND MODE |
| LOE | LOOP ON ERROR |
| IER* | INHIBIT ALL ERROR REPORTS |
| IBR* | INHIBIT ALL ERROR REPORTS EXCEPT FIRST LEVEL (FIRST LEVEL CONTAINS ERROR TYPE, NUMBER, PC, TEST AND UNIT) |
| IXE* | INHIBIT EXTENDED ERROR REPORTS (THOSE CALLED BY PRINTX MACRO'S) |
| PRI | DIRECT MESSAGES TO LINE PRINTER |
| PNT | PRINT TEST NUMBER AS TEST EXECUTES |
| BOE | "BELL" ON ERROR |
| UAM | UNATTENDED MODE (NO MANUAL INTERVENTION) |
| ISR | INHIBIT STATISTICAL REPORTS (DOES NOT APPLY TO DIAGNOSTICS WHICH DO NOT SUPPORT STATISTICAL REPORTING) |
| IDR | INHIBIT PROGRAM DROPPING OF UNITS |
| ADR | EXECUTE AUTODROP CODE |
| LOT | LOOP ON TEST |

*ERROR MESSAGES ARE DESCRIBED IN SECTION 3.1

SEE THE XXDP+ USER'S MANUAL FOR MORE DETAILS ON FLAGS. YOU MAY SPECIFY MORE THAN ONE FLAG WITH THE FLAG SWITCH. FOR EXAMPLE, TO CAUSE THE PROGRAM TO LOOP ON ERROR, INHIBIT ERROR REPORTS AND TYPE A "BELL" ON ERROR, YOU MAY USE THE FOLLOWING STRING:

```
/FLAGS:LOE:IER:BOE
```

## 2.4 HARDWARE QUESTIONS

WHEN A DIAGNOSTIC IS STARTED, THE RUNTIME SERVICES WILL PROMPT THE USER FOR HARDWARE INFORMATION BY TYPING "CHANGE HW (L) ?" YOU MUST ANSWER "Y" AFTER A START COMMAND UNLESS THE HARDWARE INFORMATION HAS BEEN "PRELOADED" USING THE SETUP UTILITY (SEE CHAPTER 6 OF THE XXDP+ USER'S MANUAL). WHEN YOU ANSWER THIS QUESTION WITH A "Y", THE RUNTIME SERVICES WILL ASK FOR THE NUMBER OF UNITS (IN DECIMAL).

AFTER INITIAL STARTING OF THE PROGRAM (START COMMAND TO THE DIAGNOSTIC SUPERVISOR), THE PROGRAM WILL ISSUE THE "CHANGE HW?" QUESTION TO ASK IF THE HARDWARE PARAMETERS ARE TO BE CHANGED (BY THE OPERATOR).

ON A "N" (NO) RESPONSE TO THE "CHANGE HW?" QUESTION, THE DIAGNOSTIC WILL RUN USING THE DEFAULT VALUES FOR ALL QUESTIONS. THE DEFAULT ADDRESS AND VECTOR ARE:

TSBA/TSDB = 172520, VECTOR = 224

ON A "Y" (YES) RESPONSE TO THE QUESTION, THE FOLLOWING QUESTIONS WILL THEN BE ASKED TO ALLOW THE OPERATOR TO SELECT THE UNITS TO BE TESTED. A VALUE, IF PRESENT, LOCATED TO THE LEFT OF THE QUESTION MARK IS THE DEFAULT VALUE THAT WILL BE TAKEN IF ONLY A CARRIAGE RETURN IS TYPED AS A RESPONSE. A "(D)" IN A QUESTION INDICATES THAT A DECIMAL NUMBER IS REQUIRED AS A RESPONSE. AN "(O)" INDICATES AN OCTAL NUMBER IS BEING SOLICITED. AN "(L)" INDICATES THAT A LOGICAL RESPONSE IS TO BE MADE: "Y" FOR YES, "N" FOR NO.

```
# UNITS (D) ?  <ENTER THE NUMBER OF M7455 CONTROLLERS
                PRESENT TO BE TESTED>
UNIT 0

DEVICE ADDRESS  (O) 172520 ? <ENTER THE ADDRESS OF THE
                              TSBA/TSDB REGISTER>

VECTOR (O) 224 ?        <ENTER ADDRESS OF INTERRUPT
                        VECTOR>
```

THE ADDRESS AND VECTOR QUESTIONS WILL BE ASKED FOR EACH OF THE NUMBER OF UNITS (CONTROLLERS) SPECIFIED IN THE "# UNITS?" QUESTION. LOGICAL UNIT NUMBERS ARE ASSIGNED IN ORDER, BEGINNING AT 0. UP TO FOUR UNITS CAN BE SELECTED FOR TESTING AS FOLLOWS:
UP TO 4 TSV05 CONTROLLERS PER LSI-11 AND UP TO 2 DRIVES PER CONTROLLER

## 2.5 SOFTWARE QUESTIONS

AFTER YOU HAVE ANSWERED THE HARDWARE QUESTIONS OR AFTER A RESTART OR CONTINUE COMMAND, THE RUNTIME SERVICES WILL ASK FOR SOFTWARE PARAMETERS. THESE PARAMETERS WILL GOVERN SOME DIAGNOSTIC SPECIFIC OPERATION MODES. YOU WILL BE PROMPTED BY "CHANGE SW (L) ?" IF YOU WISH TO CHANGE ANY PARAMETERS, ANSWER BY TYPING "Y". THE SOFTWARE QUESTIONS AND THE DEFAULT VALUES ARE DESCRIBED IN THE NEXT PARAGRAPH(S).

THE FOLLOWING QUESTIONS ARE ASKED ON A START, RESTART, OR CONTINUE. THEY ALLOW FLEXIBILITY IN THE WAY THE PROGRAM BEHAVES.

```
CHANGE SW (L) ? <TYPE Y TO CAUSE THE FOLLOWING
                 QUESTIONS TO BE ASKED>

INHIBIT ITERATIONS (L) N ?  <TYPE "Y" TO PREVENT MULTIPLE
                            ITERATIONS OF CERTAIN TESTS.
                            THIS CAUSES EACH TEST PASS TO
                            RUN AS QUICKLY AS POSSIBLE.
                            ONLY QUICK-RUNNING LOGIC
                            TESTS USE MULTIPLE
                            ITERATIONS.>
```

## 2.6 EXTENDED P-TABLE DIALOGUE

WHEN YOU ANSWER THE HARDWARE QUESTIONS, YOU ARE BUILDING ENTRIES IN A TABLE THAT DESCRIBES THE DEVICES UNDER TEST. THE SIMPLEST WAY TO BUILD THIS TABLE IS TO ANSWER ALL QUESTIONS FOR EACH UNIT TO BE TESTED. IF YOU HAVE A MULTIPLEXED DEVICE SUCH AS A MASS STORAGE CONTROLLER WITH SEVERAL DRIVES OR A COMMUNICATION DEVICE WITH SEVERAL LINES, THIS BECOMES TEDIOUS SINCE MOST OF THE ANSWERS ARE REPETITIOUS.

/\

TO ILLUSTRATE A MORE EFFICIENT METHOD, SUPPOSE YOU ARE TESTING A DEVICE, THE XY11. SUPPOSE THIS DEVICE CONSISTS OF A CONTROL MODULE WITH EIGHT UNITS (SUB-DEVICES) ATTACHED TO IT. THESE UNITS ARE DESCRIBED BY THE OCTAL NUMBERS 0 THROUGH 7. THERE IS ONE HARDWARE PARAMETER THAT CAN VARY AMONG UNITS CALLED THE Q-FACTOR. THIS Q-FACTOR MAY BE 0 OR 1. BELOW IS A SIMPLE WAY TO BUILD A TABLE FOR ONE XY11 WITH EIGHT UNITS.

```
# UNITS (D) ?  8<CR>

UNIT 1
CSR ADDRESS (O) ?  160000<CR>
SUB-DEVICE # (O) ?  0<CR>
Q-FACTOR (O) 0 ?  1<CR>

UNIT 2
CSR ADDRESS (O) ?  160000<CR>
SUB-DEVICE # (O) ?  1<CR>
Q-FACTOR (O) 1 ?  0<CR>

UNIT 3
CSR ADDRESS (O) ?  160000<CR>
SUB-DEVICE # (O) ?  2<CR>
```

```
Q-FACTOR (0) 0 ?  <CR>

UNIT 4
CSR ADDRESS (0) ?  160000<CR>
SUB-DEVICE # (0) ?  3<CR>
Q-FACTOR (0) 0 ?  <CR>

UNIT 5
CSR ADDRESS (0) ?  160000<CR>
SUB-DEVICE # (0) ?  4<CR>
Q-FACTOR (0) 0 ?  <CR>

UNIT 6
CSR ADDRESS (0) ?  160000<CR>
SUB-DEVICE # (0) ?  5<CR>
Q-FACTOR (0) 0 ?  <CR>

UNIT 7
CSR ADDRESS (0) ?  160000<CR>
SUB-DEVICE # (0) ?  6<CR>
Q-FACTOR (0) 0 ?  1<CR>

UNIT 8
CSR ADDRESS (0)  160000<CR>
SUB-DEVICE # (0) ?  7<CR>
Q-FACTOR (0) 1 ?  <CR>
```

NOTICE THAT THE DEFAULT VALUE FOR THE Q-FACTOR CHANGES WHEN A NON-DEFAULT RESPONSE IS GIVEN.  BE CAREFUL WHEN SPECIFYING MULTIPLE UNITS!

AS YOU CAN SEE FROM THE ABOVE EXAMPLE, THE HARDWARE PARAMETERS DO NOT VARY SIGNIFICANTLY FROM UNIT TO UNIT.  THE PROCEDURE SHOWN IS NOT VERY EFFICIENT.

THE RUNTIME SERVICES CAN TAKE MULTIPLE UNIT SPECIFICATIONS HOWEVER. LET'S BUILD THE SAME TABLE USING THE MULTIPLE SPECIFICATION FEATURE.

```
        # UNITS (D) ?  8<CR>

        UNIT 1
        CSR ADDRESS (O) ?  160000<CR>
        SUB-DEVICE # (O) ?  0,1<CR>
        Q-FACTOR (O) O ?  1,0<CR>

        UNIT 3
        CSR ADDRESS (O) ?  160000<CR>
        SUB-DEVICE # (O) ?  2-5<CR>
        Q-FACTOR (O) O ?  0<CR>

        UNIT 7
        CSR ADDRESS (O) ?  160000<CR>
        SUB-DEVICE # (O) ?  6,7<CR>
        Q-FACTOR (O) O ?  1<CR>
```

AS YOU CAN SEE IN THE ABOVE DIALOGUE, THE RUNTIME SERVICES WILL BUILD AS MANY ENTRIES AS IT CAN WITH THE INFORMATION GIVEN IN ANY ONE PASS THROUGH THE QUESTIONS. IN THE FIRST PASS, TWO ENTRIES ARE BUILT SINCE TWO SUB-DEVICES AND Q-FACTORS WERE SPECIFIED. THE SERVICES ASSUME THAT THE CSR ADDRESS IS 160000 FOR BOTH SINCE IT WAS SPECIFIED ONLY ONCE. IN THE SECOND PASS, FOUR ENTRIES WERE BUILT. THIS IS BECAUSE FOUR SUB-DEVICES WERE SPECIFIED. THE "-" CONSTRUCT TELLS THE RUNTIME SERVICES TO INCREMENT THE DATA FROM THE FIRST NUMBER TO THE SECOND. IN THIS CASE, SUB-DEVICES 2, 3, 4 AND 5 WERE SPECIFIED. (IF THE SUB-DEVICE WERE SPECIFIED BY ADDRESSES, THE INCREMENT WOULD BE BY 2 SINCE ADDRESSES MUST BE ON AN EVEN BOUNDARY.) THE CSR ADDRESSES AND Q-FACTORS FOR THE FOUR ENTRIES ARE ASSUMED TO BE 160000 AND 0 RESPECTIVELY SINCE THEY WERE ONLY SPECIFIED ONCE. THE LAST TWO UNITS ARE SPECIFIED IN THE THIRD PASS.

THE WHOLE PROCESS COULD HAVE BEEN ACCOMPLISHED IN ONE PASS AS SHOWN BELOW.

```
        # UNITS (D) ?  8<CR>

        UNIT 1
        CSR ADDRESS (O) ?  160000<CR>
        SUB-DEVICE # (O) ?  0-7<CR>
        Q-FACTOR (O) O ?  0,1,0,...,1,1<CR>
```

AS YOU CAN SEE FROM THIS EXAMPLE, NULL REPLIES (COMMAS ENCLOSING A NULL FIELD) TELL THE RUNTIME SERVICES TO REPEAT THE LAST REPLY.

## 2.7 QUICK START-UP PROCEDURE (XXDP+)

TO START-UP THIS PROGRAM:

1. BOOT XXDP+
2. GIVE THE DATE AND ANSWER THE LSI AND 50HZ (IF THERE IS A CLOCK) QUESTIONS
3. TYPE "R NAME", WHERE NAME IS THE NAME OF THE BIN OR BIC FILE FOR THIS PROGRAM
4. TYPE "START"
5. ANSWER THE "CHANGE HW" QUESTION WITH "Y"
6. ANSWER ALL THE HARDWARE QUESTIONS
7. ANSWER THE "CHANGE SW" QUESTION WITH "N"

WHEN YOU FOLLOW THIS PROCEDURE YOU WILL BE USING ONLY THE DEFAULTS FOR FLAGS AND SOFTWARE PARAMETERS. THESE DEFAULTS ARE DESCRIBED IN SECTIONS 2.3 AND 2.5.

# 3.0 ERROR INFORMATION

## 3.1 TYPES OF ERROR MESSAGES

THERE ARE THREE LEVELS OF ERROR MESSAGES THAT MAY BE ISSUED BY A DIAGNOSTIC: GENERAL, BASIC AND EXTENDED. GENERAL ERROR MESSAGES ARE ALWAYS PRINTED UNLESS THE "IER" FLAG IS SET (SECTION 2.3). THE GENERAL ERROR MESSAGE IS OF THE FORM:

```
NAME  TYPE  NUMBER  ON UNIT NUMBER  TST NUMBER PC:XXXXXX
ERROR MESSAGE
```

```
.WHERE: NAME = DIAGNOSTIC NAME
        TYPE = ERROR TYPE (SYS FATAL, DEV FATAL, HARD OR SOFT)
        NUMBER = ERROR NUMBER
        UNIT NUMBER = 0 - N (N IS LAST UNIT IN PTABLE)
        TST NUMBER = TEST AND SUBTEST WHERE ERROR OCCURRED
        PC:XXXXXX = ADDRESS OF ERROR MESSAGE CALL
```

BASIC ERROR MESSAGES ARE MESSAGES THAT CONTAIN SOME ADDITIONAL INFORMATION ABOUT THE ERROR. THESE ARE ALWAYS PRINTED UNLESS THE "IER" OR "IBR" FLAGS ARE SET (SECTION 2.3). THESE MESSAGES ARE PRINTED AFTER THE ASSOCIATED GENERAL MESSAGE.

EXTENDED ERROR MESSAGES CONTAIN SUPPLEMENTARY ERROR INFORMATION SUCH AS REGISTER CONTENTS OR GOOD/BAD DATA. THESE ARE ALWAYS PRINTED UNLESS THE "IER", "IBR" OR "IXR" FLAGS ARE SET (SECTION 2.3). THESE MESSAGES ARE PRINTED AFTER THE ASSOCIATED GENERAL ERROR MESSAGE AND ANY ASSOCIATED BASIC ERROR MESSAGES.

## 3.2 SPECIFIC ERROR MESSAGES

BELOW ARE SAMPLE ERROR MESSAGES. EACH ERROR MESSAGE REPRESENTS DIFFERENT TYPES OF ERRORS DETECTED BY THIS DIAGNOSTIC.

### ERROR MESSAGE EXAMPLE 1

THIS ERROR IS INDICATIVE OF AN INCORRECT REGISTER OR STATUS WORD RETURNED TO THE DIAGNOSTIC. THE FIRST PART DEFINES THE TEST FUNCTION AND UNIT THAT FAILED. THE SECOND PART PRIOVIDES THE REGISTER BITS AND THEIR MNEMONICS FOR THE INCORRECT REGISTER OR STATUS WORDS. THE THIRD PART IS THE EXPECTED AND RECEIVED DATA.

```
TST: 016 FIFO EXERCISER TEST
CVTSC HRD ERR 01610 ON UNIT 00 TST 016 SUB 002 PC: 040624
FIFO STATUS (IN WORD  9) INCORRECT AFTER WRITE FIFO

 TAPE BUS SIGNALS IN WORD #8: - DESIGNATOR <BIT #>
PARERR<15>  IEOT  <12>  IFMK  <9>  IRDY<6>  IRWD<2>
IRESV2<14>  IIDENT<11>  IHER  <8>  IONL<5>  IFBY<1>
IRESV1<13>  ICER  <10>  ISPEED<7>  ILDP<4>  IFPT<0>
 TAPE BUS SIGINALS IN WORD #9:
DATMIS<7>  ILW<6>  OUTRDY<5>  INRDY<4>
 MESSAGE BUFFER ADDRESS = 047352
 MESSAGE BUFFER CONTENTS:
WORD #0 EXPD: 100020  RECV: 100020  XOR: 000000
WORD #1 EXPD: 000012  RECV: 000012  XOR: 000000
WORD #2 EXPD: 000000  RECV: 000000  XOR: 000000
WORD #3 EXPD: 000010  RECV: 000010  XOR: 000000
WORD #4 EXPD: 000000  RECV: 000000  XOR: 000000
WORD #5 EXPD: 000000  RECV: 000000  XOR: 000000
WORD #6 EXPD: 000000  RECV: 000000  XOR: 000000
WORD #7 EXPD: 000000  RECV: 000000  XOR: 000000
WORD #8 EXPD: 070217  RECV: 070217  XOR: 000000
WORD #9 EXPD: 000074  RECV: 000034  XOR: 000040
```

### ERROR MESSAGE EXAMPLE 2

THIS ERROR SHOWS A FATAL FUNCTION ERROR FROM THE TAPE DRIVE. IN THIS INSTANCE AN UNRECOVERABLE ERROR OCCURED WHICH INDICATES THAT THE CONTROLLER MAY BE DEFECTIVE.

```
CVTSC HRD ERR 00159 ON UNIT 00 TST 001 SUB 005 PC: 026202
TSSR NOT CORRECT AFTER SPACE RECORDS COMMAND
 TSSR = 100214
 TSSR BITS SET: SC,SSR
 TERMINATION CLASS CODE = UNRECOVERABLE ERROR
 PACKET ADDRESS = 026420
 PACKET WORD #  = 140010
 PACKET WORD #  = 000010
 PACKET WORD #  = 000000
 PACKET WORD #  = 000024
```

## ERROR MESSAGE EXAMPLE 3

THIS ERROR SHOWS THAT THE MOTION BIT DID NOT GET SET WHILE DOING A REWIND WITH EXTENDED FEATURES MODE ENABLED.

```
CVTSC HRD ERR 00121 ON UNIT 00 TST 001 SUB 002 PC: 023306
MOT BIT (XSTO) NOT SET DURING REWIND (EXTENDED FEATURES MODE)
 EXPD: 000312 RECV: 000112 XOR: 000200
```

## 4.0 PERFORMANCE AND PROGRESS REPORTS

AT THE END OF EACH PASS, THE PASS COUNT IS GIVEN ALONG WITH THE TOTAL NUMBER OF ERRORS REPORTED SINCE THE DIAGNOSTIC WAS STARTED. THE "EOP" SWITCH CAN BE USED TO CONTROL HOW OFTEN THE END OF PASS MESSAGE IS PRINTED. SECTION 2.2 DESCRIBES SWITCHES.

SUCCESSFUL RUN EXAMPLE (LSI-11)

```
 DR>STA/FLA:PNT:HOE

 UNITS (D) ?  1

 UNIT 0

 DEVICE ADDRESS  (O) 172520 ? <CR>

 VECTOR (O) 224 ? <CR>

 CHANGE SW (L) ? N<CR>
```

THE ABOVE COMMAND WILL START THE DIAGNOSTIC. THE COMMAND HAS TWO SWITCHES ON WHICH ARE "PRINT EACH TEST NBR AS EXECUTED" AND "HALT ON ERROR".

```
TST: 001 INITIALIZE #4 TEST
TST: 002 OFF-LINE REJECT AND REWIND TEST
TST: 003 BASIC WRITE DATA TEST
TST: 004 BASIC READ DATA TEST
TST: 005 SPACE RECORDS TEST
TST: 006 REREADS TEST
TST: 007 WRITE DATA RETRY TEST
TST: 008 WRITE TAPE MARK TEST

0 ERRORS
```

NOTE: THE DIAGNOSTIC WILL RUN CONTINUOUSLY UNLESS A PASS NUMBER LIMIT HAS BEEN SPECIFIED WITH THE "/PASS:" SWITCH.

PROGRAM RUN TIMES

THE AVERAGE RUN TIMES OF THE PROGRAM ARE LISTED BELOW.THESE FIGURES ARE TO BE USED AS A GUIDE. THE TIMING WAS DONE ON A LSI-11 PROCESSOR WITH A LA34 CONSOLE.

THE PROGRAM RUNS IN TWO MODES; NO ITERATIONS AND DEFAULT MODE. IN THE NO ITERATIONS MODE, EACH TEST IS RUN ONCE, WITH NO ITERATIONS. IN THE DEFAULT MODE EACH TEST IS REPEATED BY THE NUMBER OF TIMES INDICATED BY THE ITERATION COUNT. NO ITERATIONS MODE IS SELECTED BY ANSWERING THE INHIBIT ITERATIONS QUESTION WITH A "Y" (YES).

| TEST NUMBER | N/I SECS. | NUMBER ITER | DEF SECS. |
|---|---|---|---|
| 1 | 3 | 10 | 7 |
| 2 | 3 | 8 | 5 |
| 3 | 38 | 250 | 212 |
| 4 | 60 | 300 | 240 |
| 5 | 60 | 300 | 240 |
| 6 | 120 | 360 | 240 |
| 7 | 120 | 600 | 480 |
| 8 | 22 | 90 | 68 |

THE TIMES REQUIRED TO RUN TESTS 1 THROUGH 8 IN ONE COMMAND:

| | |
|---|---|
| Q.V. | 7 MINUTES |
| DEFAULT | 31 MINUTES |

## 5.0 DEVICE INFORMATION TABLES

WHENEVER THE PROGRAM IS STARTED, VIA THE STA(RT) COMMAND, THE SUPERVISOR REQUESTS THE FOLLOWING P-TABLES PARAMETER CHANGES:

```
CHANGE HW (L) ?

# UNITS (D) ?  <ENTER THE NUMBER OF M7455 CONTROLLERS
                PRESENT TO BE TESTED>

UNIT 0

DEVICE ADDRESS  (O) 172520 ? <ENTER THE ADDRESS OF THE
                              TSBA/TSDB REGISTER>

VECTOR (O) 224 ?        <ENTER ADDRESS OF INTERRUPT
                         VECTOR>
```

THE ADDRESS AND VECTOR QUESTIONS WILL BE ASKED FOR EACH OF THE NUMBER OF UNITS (CONTROLLERS) SPECIFIED IN THE "# UNITS?" QUESTION. LOGICAL UNIT NUMBERS ARE ASSIGNED IN ORDER, BEGINNING AT O. UP TO FOUR UNITS CAN BE SELECTED FOR TESTING.

IN ADDITION, ON A START, RESTART OR CONTINUE THE SUPERVISOR REQUESTS CHANGES TO THE SOFTWARE OPERATING PARAMETERS, AS FOLLOWS:

```
CHANGE SW (L) ?

INHIBIT ITERATIONS (L) N ?
```

## 6.0 TEST SUMMARIES

### TEST 1: INITIALIZE #4 TEST

THIS TEST VERIFIES THAT WRITING INTO THE TSSR RETURNS THE CONTROLLER TO ITS INITIALIZED STATE FROM VARIOUS CONDITIONS (I.E. LOOPBACK ENABLED, FORCING WRONG PARITY, INVERTING SENSE OF EXTENDED FEATURES SWITCH, ETC.)

### TEST 2: OFF-LINE AND REJECT REWIND

THIS TEST VERIFIES BASIC TAPE-MOTION COMMAND DECODING AND BASIC OPERATION OF THE REWIND POSITIONING COMMAND. IT DOES NOT NECESSARILY DEMONSTRATE THAT THE TRANSPORT CAN BE REWOUND FROM AN ARBITRARY POSITION ON THE TAPE. SUBSEQUENT TESTS IMPLICITLY CHECK THE OPERATION OF THE REWIND COMMAND SINCE THEY MUST TYPICALLY REWIND THE TAPE IN THE NORMAL COURSE OF THEIR TEST SEQUENCES.

### TEST 3: BASIC WRITE DATA

THIS TEST VERIFIES THAT THE WRITE DATA (NEXT) COMMAND OPERATES PROPERLY, UP TO THE POINT OF CHECKING THAT THE DATA WAS ACTUALLY WRITTEN ONTO THE TAPE CORRECTLY. CHECKING IN THIS TEST IS LIMITED TO VERIFYING THAT THE COMMAND TERMINATED CORRECTLY WITH THE CORRECT REGISTER, MESSAGE BUFFER AND RAM CONTENTS.

**********

CAUTION

The LSI BUS drivers for all available address lines(16-21) are only checked when running on a LSI-11 system with more than 128K words of memory!

**********

### TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

THIS TEST VERIFIES THAT THE READ FORWARD AND READ REVERSE COMMANDS OPERATE PROPERLY. VARIOUS COMBINATIONS OF ODD AND EVEN DATA BUFFER BOUNDARIES, RECORD SIZES (UP TO 64K BYTES IF MEMORY SPACE IS AVAILIABLE), AND BYTE-SWAP CONTROL ARE USED. THIS TEST OF COURSE, FURTHER VERIFIES THE WRITE DATA COMMAND BY ACTUALLY READING AND VERIFYING WRITTEN DATA. ALSO TESTED ARE PROPER TERMINATIONS ON EXCEPTIONAL OR ERROR CONDITIONS: RECORD LENGTH LONG, RECORD LENGTH SHORT, READ REVERSE AT BOT, ILLEGAL DATA BUFFER ADDRESSES, ILLEGAL CODES IN THE MODE FIELD OF THE BASIC READ COMMAND, AND DATA BUFFERS IN NON-EXISTANT MEMORY.

**********

CAUTION

The LSI BUS drivers for all available address lines(16-21) are only checked when running on a LSI-11 system with more than 128K words of memory!

**********

TEST 5: SPACE RECORDS

THIS TEST VERIFIES THAT THE SPACE RECORDS FORWARD AND SPACE RECORDS REVERSE POSITION COMMANDS OPERATE PROPERLY WHEN SPACING OVER NORMAL DATA RECORDS. OPERATION WHEN SPACING OVER TAPE MARKS IS VERIFIED IN A SUBSEQUENT TEST. THE BASIC WRITE DATA TEST SHOULD HAVE BEEN RUN SUCCESSFULLY FOR THIS TEST TO PRODUCE MEANINGFUL RESULTS. THIS TEST CONSISTS OF A SERIES OF SUBTESTS. IN EACH OF THE SUBTESTS, THE TAPE IS ENTIRELY WRITTEN WITH RECORDS OF VARYING SIZES AND DATA CONTENT; THE FIRST 4 BYTES OF EACH RECORD INDICATE THAT RECORD'S RELATIVE POSITION ON TAPE. AFTER EACH SPACING OPERATION, THE TAPE POSITION IS VERIFIED BY READING THE NEXT OR PREVIOUS RECORD AND COMPARING THE POSITION DATA WITH THE EXPECTED RESULT.

TEST 6: REREADS

THIS TEST VERIFIES THAT THE REREAD PREVIOUS AND REREAD NEXT COMMANDS OPERATE PROPERLY. VARIOUS COMBINATIONS OF ODD AND EVEN DATA BUFFER BOUNDRIES, RECORD SIZES (UP TO 64K BYTES IF MEMORY SPACE IS AVAILIABLE), AND BYTE-SWAP (SWP) AND OPPOSITE (OPP) CONRTOL ARE USED. ALSO TESTED ARE PROPER TERMINATIONS ON EXCEPTIONAL OR ERROR CONDITIONS: RECORD LENGTH LONG, RECORD LENGTH SHORT, READ REVERSE AT BOT, ILLEGAL DATA BUFFER ADDRESSES, AND DATA BUFFERS IN NONEXISTENT MEMORY.

**********

CAUTION

The LSI BUS drivers for all available address lines(16-21) are only checked when running on a LSI-11 system with more than 128K words of memory!

**********

TEST 7: WRITE DATA RETRY

THIS TEST VERIFIES PROPER OPERATION OF THE WRITE DATA RETRY COMMAND (SPACE REVERSE, ERASE, WRITE DATA)

TEST 8: WRITE/READ TAPE MARK

THIS TEST VERIFIES THAT THE WRITE TAPE MARK COMMAND OPERATES PROPERLY. IT IS VERIFIED THAT THE TAPE MARK IS WRITTEN ONTO TAPE BY CHECKING THAT THE READ AND SPACE RECORDS COMMANDS DETECT THE TAPE MARK. IN ADDITION, SINCE WRITE TAPE MARK IS THE FIRST SUBCOMMAND UNDER THE FORMAT COMMAND BEING TESTED, IT IS VERIFIED THAT THE CLEAR VOLUME CHECK (CVC) BIT OPERATES PROPERLY AND THAT FORMAT COMMANDS WITH ILLEGAL MODE CODES ARE REJECTED.

7.0 MAINTENANCE HISTORY

REVISION A - JUNE 1983

REVISION B - JUNE 1984
UPDATED FOR NEW ORION CPU PROBLEMS, RELATING TO TIMEOUT ERRORS (#311 & #320) ON REWINDS.
ELIMINATED CPU ID MESSAGE.

REVISION C - JUNE 1985
UPDATED TO PERFORM CORRECTLY WITH XXDP V2.1 EXTENDED MONITOR (DRSXM).

```
                                        .TITLE  TSV2 - PROGRAM HEADER
                                        .SBTTL  PROGRAM HEADER
000000                                  .PSECT  ABS

                                        .MCALL  SVC
000000                                  SVC                     ; INITIALIZE SUPERVISOR MACROS
                                        .ENABLE LC
                                        .NLIST  BEX,CND
000000                                  .ENABL  ABS,AMA
        002000                          .=2000
002000                                  BGNMOD  TSV2
002000                          TSV2::

                                ;++
                                ; THE PROGRAM HEADER IS THE INTERFACE BETWEEN
                                ; THE DIAGNOSTIC PROGRAM AND THE SUPERVISOR.
                                ;--


                                        POINTER BGNSW,BGNSFT,BGNAU,BGNDU,BGNRPT
002000                                  HEADER  CVTSC,C,0,655.,0
002000                          L$NAME::                ;DIAGNOSTIC NAME
002000      103                         .ASCII  /C/
002001      126                         .ASCII  /V/
002002      124                         .ASCII  /T/
002003      123                         .ASCII  /S/
002004      103                         .ASCII  /C/
002005      000                         .BYTE   0
002006      000                         .BYTE   0
002007      000                         .BYTE   0
002010                          L$REV::                 ;REVISION LEVEL
002010      103                         .ASCII  /C/
002011                          L$DEPO::                ;0
002011      060                         .ASCII  /0/
002012                          L$UNIT::                ;NUMBER OF UNITS
002012  000000                          .WORD   0
002014                          L$TIML::                ;LONGEST TEST TIME
002014  001217                          .WORD   655.
002016                          L$HPCP::                ;POINTER TO H.W. QUES.
002016  113610                          .WORD   L$HARD
002020                          L$SPCP::                ;POINTER TO S.W. QUES.
```

PROGRAM HEADER

```
002020  113742                  .WORD   L$SOFT
002022                  L$HPTP::                ;PTR. TO DEF. H.W. PTABLE
002022  002146                  .WORD   L$HW
002024                  L$SPTP::                ;PTR. TO S.W. PTABLE
002024  002156                  .WORD   L$SW
002026                  L$LADP::                ;DIAG. END ADDRESS
002026  114404                  .WORD   L$LAST
002030                  L$STA::                 ;RESERVED FOR APT STATS
002030  000000                  .WORD   0
002032                  L$CO::
002032  000000                  .WORD   0
002034                  L$DTYP::                ;DIAGNOSTIC TYPE
002034  000000                  .WORD   0
002036                  L$APT::                 ;APT EXPANSION
002036  000000                  .WORD   0
002040                  L$DTP::                 ;PTR. TO DISPATCH TABLE
002040  002124                  .WORD   L$DISPATCH
002042                  L$PRIO::                ;DIAGNOSTIC RUN PRIORITY
002042  C00000                  .WORD   0
002044                  L$ENVI::                ;FLAGS DESCRIBE HOW IT WAS SETUP
002044  000000                  .WORD   0
002046                  L$EXP1::                ;EXPANSION WORD
002046  000000                  .WORD   0
002050                  L$MREV::                ;SVC REV AND EDIT #
002050     003                  .BYTE   C$REVISION
002051     003                  .BYTE   C$EDIT
002052                  L$EF::                  ;DIAG. EVENT FLAGS
002052  000000                  .WORD   0
002054  000000                  .WORD   0
002056                  L$SPC::
002056  000000                  .WORD   0
002060                  L$DEVP::                ; POINTER TO DEVICE TYPE LIST
002060  003372                  .WORD   L$DVTYP
002062                  L$REPP::                ;PTR. TO REPORT CODE
002062  023574                  .WORD   L$RPT
002064                  L$EXP4::
002064  000000                  .WORD   0
002066                  L$EXP5::
002066  000000                  .WORD   0
002070                  L$AUT::                 ;PTR. TO ADD UNIT CODE
002070  023262                  .WORD   L$AU
002072                  L$DUT::                 ;PTR. TO DROP UNIT CODE
002072  023360                  .WORD   L$DU
002074                  L$LUN::                 ;LUN FOR EXERCISERS TO FILL
002074  000000                  .WORD   0
002076                  L$DESP::                ;POINTER TO DIAG. DESCRIPTION
002076  003400                  .WORD   L$DESC
002100                  L$LOAD::                ;GENERATE SPECIAL AUTOLOAD EMT
002100  104035                  EMT     E$LOAD
002102                  L$ETP::                 ;POINTER TO ERRTBL
002102  000000                  .WORD   0
002104                  L$ICP::                 ;PTR. TO INIT CODE
002104  022466                  .WORD   L$INIT
002106                  L$CCP::                 ;PTR. TO CLEAN-UP CODE
002106  023546                  .WORD   L$CLEAN
002110                  L$ACP::                 ;PTR. TO AUTO CODE
002110  023466                  .WORD   L$AUTO
```

PROGRAM HEADER

```
        002112
        002112  022456                  L$PRT::
                                                .WORD   L$PROT          ;PTR. TO PROTECT TABLE
        002114
        002114  000000                  L$TEST::
                                                .WORD   0               ;TEST NUMBER
        002116
        002116  000000                  L$DLY::
                                                .WORD   0               ;DELAY COUNT
        002120
        002120  000000                  L$HIME::
                                                .WORD   0               ;PTR. TO HIGH MEM
    870
```

DISPATCH TABLE

```
                                        .SBTTL  DISPATCH TABLE
                                ;++
                                ; THE DISPATCH TABLE CONTAINS THE STARTING ADDRESS OF EACH TEST.
                                ; IT IS USED BY THE SUPERVISOR TO DISPATCH TO EACH TEST.
                                ;--
002122                                  DISPATCH 8
002122  000010                          .WORD   8
002124                          L$DISPATCH::
002124  024356                          .WORD   T1
002126  025472                          .WORD   T2
002130  030152                          .WORD   T3
002132  035332                          .WORD   T4
002134  047576                          .WORD   T5
002136  056524                          .WORD   T6
002140  076106                          .WORD   T7
002142  106144                          .WORD   T8

                                        .SBTTL  DEFAULT HARDWARE P-TABLE
                                ;++
                                ; THE DEFAULT HARDWARE P-TABLE CONTAINS DEFAULT VALUES OF
                                ; THE TEST-DEVICE PARAMETERS.  THE STRUCTURE OF THIS TABLE
                                ; IS IDENTICAL TO THE STRUCTURE OF THE RUN-TIME P-TABLE.
                                ;--
002144                                  BGNHW   DFPTBL          ;DEFAULT HARD-P-TABLE
002144  000003                          .WORD   L10000-L$HW/2
002146                          L$HW::
002146                          DFPTBL::
002146  172520                          .WORD   172520          ; 1ST (OF 2) REGISTERS.
002150  000224                          .WORD   224             ; INTERRUPT VECTOR
002152  000200                          .WORD   PRI04           ; INTERRUPT PRIORITY.
002154                                  ENDHW
002154                          L10000:

                                        .SBTTL  SOFTWARE P-TABLE
                                ;++
                                ; THE SOFTWARE P-TABLE CONTAINS THE VALUES OF THE PROGRAM
                                ; PARAMETERS THAT CAN BE CHANGED BY THE OPERATOR.
                                ;--
002154                                  BGNSW   SFPTBL
002154  000004                          .WORD   L10001-L$SW/2
002156                          L$SW::
002156                          SFPTBL::
002156  000000                  TRANSTST::      .WORD   0       ; ENABLE TEST OF TRANSPORT(S) IF =1
002160  000000                  NOITS::         .WORD   0       ; INHIBIT ITERATION OPTION.
                                                                ; ... 0 = ITERATE.
                                                                ; ...NZ = INHIBIT ITERATE.
002162  000017                  LERRMAX::       .WORD   15.     ; LOCAL (PER TEST) ERROR LIMIT
002164  000310                  GERRMAX::       .WORD   200.    ; GLOBAL (PER UNIT) ERROR LIMIT
002166                                  ENDSW
002166                          L10001:
002166                                  ENDMOD

                                        .TITLE  TSV3 - GLOBAL AREAS
                                        .SBTTL  GLOBAL EQUATES SECTION


002166                                  BGNMOD  TSV3
```

GLOBAL EQUATES SECTION

```
002166                          TSV3::

                                        .SBTTL  GLOBAL EQUATES SECTION

                                ;++
                                ; THE GLOBAL EQUATES SECTION CONTAINS PROGRAM EQUATES THAT
                                ; ARE USED IN MORE THAN ONE TEST.
                                ;--

002166                                  EQUALS          ; GET STANDARD EQUATES.
                                ;
                                ; BIT DIFINITIONS
                                ;
        100000                  BIT15== 100000
        040000                  BIT14== 40000
        020000                  BIT13== 20000
        010000                  BIT12== 10000
        004000                  BIT11== 4000
        C02000                  BIT10== 2000
        001000                  BIT09== 1000
        000400                  BIT08== 400
        000200                  BIT07== 200
        000100                  BIT06== 100
        000040                  BIT05== 40
        000020                  BIT04== 20
        000010                  BIT03== 10
        000004                  BIT02== 4
        000002                  BIT01== 2
        000001                  BIT00== 1
                                ;
        001000                  BIT9==  BIT09
        000400                  BIT8==  BIT08
        000200                  BIT7==  BIT07
        000100                  BIT6==  BIT06
        000040                  BIT5==  BIT05
        000020                  BIT4==  BIT04
        000010                  BIT3==  BIT03
        000004                  BIT2==  BIT02
        000002                  BIT1==  BIT01
        000001                  BIT0==  BIT00
                                ;
                                ; EVENT FLAG DEFINITIONS
                                ;   EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION
                                ;
        000040                  EF.START==      32.                     ; START COMMAND WAS ISSUED
        000037                  EF.RESTART==    31.                     ; RESTART COMMAND WAS ISSUED
        000036                  EF.CONTINUE==   30.                     ; CONTINUE COMMAND WAS ISSUED
        000035                  EF.NEW==        29.                     ; A NEW PASS HAS BEEN STARTED
        000034                  EF.PWR==        28.                     ; A POWER-FAIL/POWER-UP OCCURRED
                                ;
                                ;
                                ; PRIORITY LEVEL DEFINITIONS
                                ;
        000340                  PRI07== 340
        000300                  PRI06== 300
        000240                  PRI05== 240
        000200                  PRI04== 200
```

```
GLOBAL EQUATES SECTION

                000140                  PRIO3== 140
                000100                  PRIO2== 100
                000040                  PRIO1== 40
                000000                  PRIO0== 0
                                        ;
                                        ;OPERATOR FLAG BITS
                                        ;
                000004                  EVL==         4
                000010                  LOT==        10
                000020                  ADR==        20
                000040                  IDU==        40
                000100                  ISR==       100
                000200                  UAM==       200
                000400                  BOE==       400
                001000                  PNT==      1000
                002000                  PRI==      2000
                004000                  IXE==      4000
                010000                  IBE==     10000
                020000                  IER==     20000
                040000                  LOE==     40000
                100000                  HOE==    100000
    940
    941 002166                          KT11                    ;DEFINE MEMORY MANAGEMENT REGISTERS
                                        .SBTTL  MEMORY MANAGEMENT DEFINITIONS
                                        ;*KT11 VECTOR ADDRESS
                000250                  MMVEC=  250
                                        ;*KT11 STATUS REGISTER ADDRESSES
                177572                  SR0=    177572
                177574                  SR1=    177574
                177576                  SR2=    177576
                172516                  SR3=    172516
                                        .IF NB
                                        ;*USER "I" PAGE DESCRIPTOR REGISTERS
                                        UIPDR0= 177600
                                        UIPDR1= 177602
                                        UIPDR2= 177604
                                        UIPDR3= 177606
                                        UIPDR4= 177610
                                        UIPDR5= 177612
                                        UIPDR6= 177614
                                        UIPDR7= 177616
                                        .IF NB
                                        ;*USER "D" PAGE DESCRIPTOR REGISTORS
                                        UDPDR0= 177620
                                        UDPDR1= 177622
                                        UDPDR2= 177624
                                        UDPDR3= 177626
                                        UDPDR4= 177630
                                        UDPDR5= 177632
                                        UDPDR6= 177634
                                        UDPDR7= 177636
                                        .ENDC
                                        ;*USER "I" PAGE ADDRESS REGISTERS
                                        UIPAR0= 177640
                                        UIPAR1= 177642
                                        UIPAR2= 177644
                                        UIPAR3= 177646
```

MEMORY MANAGEMENT DEFINITIONS

```
UIPAR4= 177650
UIPAR5= 177652
UIPAR6= 177654
UIPAR7= 177656
.IF NB
;*USER "D" PAGE ADDRESS REGISTERS
UDPAR0= 177660
UDPAR1= 177662
UDPAR2= 177664
UDPAR3= 177666
UDPAR4= 177670
UDPAR5= 177672
UDPAR6= 177674
UDPAR7= 177676
.ENDC
.ENDC
.IF NB
;*SUPERVISOR "I" PAGE DESCRIPTOR REGISTERS
SIPDR0= 172200
SIPDR1= 172202
SIPDR2= 172204
SIPDR3= 172206
SIPDR4= 172210
SIPDR5= 172212
SIPDR6= 172214
SIPDR7= 172216
.IF NB
;*SUPERVISOR "D" PAGE DESCRIPTOR REGISTERS
SDPDR0= 172220
SDPDR1= 172222
SDPDR2= 172224
SDPDR3= 172226
SDPDR4= 172230
SDPDR5= 172232
SDPDR6= 172234
SDPDR7= 172236
.ENDC
;*SUPERVISOR "I" PAGE ADDRESS REGISTERS
SIPAR0= 172240
SIPAR1= 172242
SIPAR2= 172244
SIPAR3= 172246
SIPAR4= 172250
SIPAR5= 172252
SIPAR6= 172254
SIPAR7= 172256
.IF NB
;*SUPERVISOR "D" PAGE ADDRESS REGISTERS
SDPAR0= 172260
SDPAR1= 172262
SDPAR2= 172264
SDPAR3= 172266
SDPAR4= 172270
SDPAR5= 172272
SDPAR6= 172274
SDPAR7= 172276
.ENDC
```

MEMORY MANAGEMENT DEFINITIONS

```
                        .ENDC
                        ;*KERNEL "I" PAGE DESCRIPTOR REGISTERS
172300                  KIPDR0= 172300
172302                  KIPDR1= 172302
172304                  KIPDR2= 172304
172306                  KIPDR3= 172306
172310                  KIPDR4= 172310
172312                  KIPDR5= 172312
172314                  KIPDR6= 172314
172316                  KIPDR7= 172316
                        .IF NB
                        ;*KERNEL "D" PAGE
                         DESCRIPTOR REGISTERS
                        KDPDR0= 172320
                        KDPDR1= 172322
                        KDPDR2= 172324
                        KDPDR3= 172326
                        KDPDR4= 172330
                        KDPDR5= 172332
                        KDPDR6= 172334
                        KDPDR7= 172336
                        .ENDC
                        ;*KERNEL "I" PAGE ADDRESS REGISTERS
172340                  KIPAR0= 172340
172342                  KIPAR1= 172342
172344                  KIPAR2= 172344
172346                  KIPAR3= 172346
172350                  KIPAR4= 172350
172352                  KIPAR5= 172352
172354                  KIPAR6= 172354
172356                  KIPAR7= 172356
                        .IF NB
                        ;*KERNEL "D" PAGE ADDRESS REGISTERS
                        KDPAR0= 172360
                        KDPAR1= 172362
                        KDPAR2= 172364
                        KDPAR3= 172366
                        KDPAR4= 172370
                        KDPAR5= 172372
                        KDPAR6= 172374
                        KDPAR7= 172376
                        .ENDC
```

```
                                .SBTTL  TSV05 REGISTER AND PACKET DEFINITIONS

                        ;
                        ; SOME GENERAL EQUATES.
                        ;

000004                  ERRVEC==        4               ; POINTER TO ERROR VECTOR FOR BUS TIME OUT.
000060                  TTIVEC==        60              ; INTERRUPT VECTOR FOR CONSOLE INPUT
177560                  TTICSR==        177560          ; BUS ADDRESS OF CONSOLE INPUT
177562                  TTIBFR==        177562          ; CONSOLE INPUT DATA BUFFER
177520                  BDVPCR==        177520          ; BDV11 PAGE CONTROL REGISTER

                        ;+
                        ;BIT DEFINITIONS FOR TSSR REGISTER
                        ;-

100000                  SC=     BIT15           ;SPECIAL CONDITION
040000                  BIE=    BIT14           ;BUS INTERFACE ERROR
020000                  SCE=    BIT13           ;SANITY CHECK ERROR
010000                  RMR=    BIT12           ;MODIFICATION REFUSED
004000                  NXM=    BIT11           ;NONEXISTANT MEMORY ERROR
002000                  NBA=    BIT10           ;NEED BUFFER ADDRESS
001400                  HIADDR= BIT9!BIT8       ;EXTENDED ADDRESS BITS
000200                  SSR=    BIT7            ;SUB SYSTEM READY
000100                  OFL=    BIT6            ;OFF LINE BIT
000060                  FATERR= BIT4!BIT5       ;FATAL TERMINATION ERROR CODES
000016                  TERCLS= BIT3!BIT2!BIT1  ;TERMINATION CODES

                        ;+
                        ;
                        ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 0
                        ;(XST0)
                        ;
                        ;-

100000                  XSOTMK= BIT15           ;TAPE MARK DETECTED
040000                  XSORLS= BIT14           ;RECORD LENGTH SHORT
020000                  XSOLET= BIT13           ;LOGICAL END OF TAPE
010000                  XSORLL= BIT12           ;RECORD LENGTH LONG
004000                  XSOWLE= BIT11           ;WRITE LOCK ERROR
002000                  XSONEF= BIT10           ;NON EXECUTABLE FUNCTION
001000                  XSOILC= BIT9            ;ILLEGAL COMMAND
000400                  XSOILA= BIT8            ;ILLEGAL ADDRESS
000200                  XSOMOT= BIT7            ;TAPE IN MOTION
000100                  XSOONL= BIT6            ;TRANSPORT ON LINE
000040                  XSOIE=  BIT5            ;INTERRUPT ENABLE
000020                  XSOVCK= BIT4            ;VOLUME CHECK BIT
000010                  XSOPED= BIT3            ;PHASE ENCODED DRIVE
000004                  XSOWLK= BIT2            ;WRITE LOCKED
000002                  XSOBOT= BIT1            ;BEGINNING OF TAPE
000001                  XSOEOT= BIT0            ;END OF TAPE
```

TSV05 REGISTER AND PACKET DEFINITIONS

```
                                ;+
                                ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 1
                                ;(XST1)
                                ;-
100000                          X1.DLT  = BIT15          ;DATA LATE
040000                          X1.SPARE= BIT14          ;NOT USED
020000                          X1.COR  = BIT13          ;CORRECTABLE DATA ERROR
017375                          X1.MBZ  = BIT12+BIT11+BIT10+BIT9+BIT7+BIT6+BIT5+BIT4+BIT3+BIT2+BIT0 ;ALWAYS 0
000400                          X1.RBP  = BIT8           ;READ BUS PARITY ERROR
000002                          X1.UNC  = BIT1           ;UNCORRECTABLE DATA OR HARD ERROR

                                ;+
                                ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 2
                                ;(XST2)
                                ;-
100000                          X2.OPM  = BIT15          ;OPERATION IN PROGRESS (TAPE MOVING)
040000                          X2.RCE  = BIT14          ;RAM CHECKSUM ERROR
035400                          X2.SPARE= BIT13+BIT12+BIT11+BIT9+BIT8   ;NOT USED BY TSV05 (ALWAYS=0)
002000                          X2.WCF  = BIT10          ;WRITE CLOCK FAILURE (FIFO NOT EMPTIED BY TRANSPORT)
000200                          X2.EXTF = BIT7           ;IF WRITE CHAR CMD THEN = EXTENDED FEATURES ENABLED
000100                          X2.BUFE = BIT6           ;IF WRITE CHAR CMD THEN = BUFFERING ENABLED
000077                          X2.REV  = 000077         ;IF WRITE CHAR CMD THEN = MICROCODE REVISION LEVEL
000007                          X2.UNIT = BIT2+BIT1+BIT0 ;IF GET STATUS THEN = CURRENTLY SELECTED UNIT NO.

                                ;+
                                ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 3
                                ;(XST3)
                                ;-
177400                          X3.MDE  = 177400         ;MICRO-DIAGNOSTIC ERROR CODE
000200                          X3.SPARE= BIT7           ;NOT USED BY TSV05
000100                          X3.OPI  = BIT6           ;OPERATION INCOMPLETE
000040                          X3.REV  = BIT5           ;REVERSE
000020                          X3.TRF  = BIT4           ;TRANSPORT RESPONSE FAILURE
000010                          X3.DCK  = BIT3           ;DENSITY CHECK
000006                          X3.MBZ  =BIT2+BIT1       ;NOT USED ALWAYS 0
000001                          X3.RIB  = BIT0           ;REVERSE INTO BOT

                                ;+
                                ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 4
                                ;(XST4)
                                ;-
100000                          X4.HSP  = BIT15          ;HIGH SPEED
040000                          X4.RCE  = BIT14          ;RETRY COUNT EXCEEDED
020000                          X4.TSM  = BIT13          ;TRANSPORT SPECIAL MODE
017400                          X4.MBZ  = BIT12+BIT11+BIT10+BIT9+BIT8   ;NOT USED ALWAYS 0
000377                          X4.WRC  = 000377         ;WRITE RETRY COUNT FIELD

                                ;+
                                ;
                                ;TSSR TERMINATION CODES (BIT 0-2)
                                ;
                                ;-

000006                                  TSREJ=  3*2              ;COMMAND REJECTED
000006                                  UNREC=  6                ;UNRECOVERABLE ERROR
```

```
                                ;+
                                ;
                                ;DEVICE REGISTER OFFSETS
                                ;
                                ;-

000000                          TSBA==  0
000000                          TSDB==  0               ;TSDB/TSBA REGISTER
000001                          TSBAH== 1
000001                          TSDBH== 1               ;TSDB/TSBA REGISTER HIGH BYTE
000002                          TSSR==  2               ;TSSR REGISTER
000003                          TSSRH== 3               ;TSSR REGISTER HIGH BYTE

                                ;+
                                ; TSDB ADDRESS BIT DEFINITIONS
                                ;-
000003                          A1716   = BIT1+BIT0     ;ADDRESS BITS 17:16 ARE IN 1:0

                                ;+
                                ; COMMAND DEFINITIONS
                                ;-
000017                          P.GETSTAT       = 17    ;GET STATUS
000013                          P.INIT          = 13    ;INITIALIZE
000012                          P.CONTROL       = 12    ;CONTROL COMMANDS
000011                          P.FORMAT        = 11    ;FORMAT
000010                          P.POSITION      = 10    ;POSITION
000006                          P.WRTSUB        = 6     ;SUBSYSTEM WRITE
000005                          P.WRITE         = 5     ;WRITE
000004                          P.WRTCHAR       = 4     ;WRITE CHARACTERISTICS
000001                          P.READ          = 1     ;READ

                                ;+
                                ; COMMAND PACKET HEADER WORD BIT DEFINITIONS
                                ;-
100000                                  P.ACK   = BIT15         ;BUFFER AVAIL FOR CONTROLLER
040000                                  P.CVC   = BIT14         ;CLEAR VOLUME CHECK
020000                                  P.OPP   = BIT13         ;REVERSE SEQUENCE OF DATA BITS
010000                                  P.SWB   = BIT12         ;SWAP BYTES IN MEMORY
007400                                  P.MODE  = BIT11!BIT10!BIT9!BIT8 ;EXTENDED COMMAND MODE FIELD
000200                                  P.IE    = BIT7          ;INTERRUPT ENABLE
000140                                  P.FMT= BIT6!BIT5        ;PACKET HEADER TYPE (ALWAYS=0)
000037                                  P.CMD   = 37            ;MAJOR COMMAND FIELD

                                ;+
                                ; CONTROL COMMAND MODE CODES
                                ;-
000000                                  PC.RELEASE      = 0*256.        ;RELEASE BUFFER
000400                                  PC.REWIND       = 1*256.        ;REWIND
001000                                  PC.NOOP         = 2*256.        ;NO-OP
002000                                  PC.IEREW        = 4*256.        ;REWIND IMMEDIATE INTERRUPT
002400                                  PC.ERASE        = 5*256.        ;SECURITY ERASE
```

```
                                ;+
                                ; CONTROLLER RAM DEFINITIONS
                                ;-
000167                          RMCHBEG = 167           ;CHARACTERISTICS IO DATA BEGIN RAM ADDRESS
000200                          RMCHEND = 200           ;CHARACTERISTICS IO DATA END RAM ADDRESS
000201                          RMPKTBEG= 201           ;COMMAND PACKET BEGIN RAM ADDRESS
000210                          RMPKTEND= 210           ;COMMAND PACKET END RAM ADDRESS
000215                          RMMSGBEG= 215           ;MESSAGE BUFFER BEGIN RAM ADDRESS
000234                          RMMSGEND= 234           ;MESSAGE BUFFER END RAM ADDRESS
                                ;+
                                ;
                                ;REGISTER DEFINITIONS IN THE MESSAGE BUFFER
                                ;
                                ;-

000006                          XST0==  6               ;EXTENDED STATUS REGISTER 0 (WORD 4)
000010                          XST1==  8.              ;EXTENDED STATUS REGISTER 1 (WORD 5)
000012                          XST2==  10.             ;EXTENDED STATUS REGISTER 2 (WORD 6)
C00014                          XST3==  12.             ;EXTENDED STATUS REGISTER 3 (WORD 7)
000016                          XST4==  14.             ;EXTENDED STATUS REGISTER 4 (WORD 8)

                                ;+
                                ;
                                ;OFFSETS TO WORD LOCATIONS IN PACKET DEFINITIONS
                                ;
                                ;-

000002                                  PKLOW   = 2             ;LOW ORDER CHARACTERISTIC DATA POINTER
000004                                  PKHI    = 4             ;HIGH ORDER CHARACTERISTIC DATA POINTER
000006                                  PKBCNT  = 6             ;NUMBER OF BYTES IN DATA PACKET

000010                                  EXBCNT=10               ;NUMBER OF BYTES IN EXTENDED DATA PACKET

                                ;+
                                ;DATA PACKET OFFSETS FOR WRITE SUBSYTEM COMMAND
                                ;-
000000                                  BSEL0   = 0             ;BYTE 0
000001                                  BSEL1   = 1             ;BYTE 1
000002                                  SEL2    = 2             ;WORD 2
000004                                  SELDATA = 4             ;WORD 3
```

```
1146                                    ;*
1147                                    ;BSEL0 SELECT CODES FOR WRITE SUBSYSTEM COMMAND
1148                                    ;-
1149          000000                    PW.NOP          = 0             ;NO-OP
1150          000001                    PW.RDRAM        = 1             ;READ RAM
1151          000002                    PW.WTRAM        = 2             ;WRITE RAM
1152          000003                    PW.RFIFO        = 3             ;READ FIFO
1153          000004                    PW.WFIFO        = 4             ;WRITE FIFO
1154          000005                    PW.RDSTAT       = 5             ;READ STATUS
1155          000006                    PW.WCTL         = 6             ;WRITE TAPE CONTROL
1156          000007                    PW.WFMT         = 7             ;WRITE TAPE FORMAT
1157          000010                    PW.WMISC        = 10            ;WRITE MISCELLANEOUS
1158          000011                    PW.WNPR         = 11            ;WRITE NPR CONTROL
1159          000020                    PW.D22          = 20            ;DO MICROTEST 22
1160          000021                    PW.D11          = 21            ;DO MICROTEST 11
1161          000022                    PW.D13          = 22            ;DO MICROTEST 13
1162          000023                    PW.NO1311       = 23            ;DISABLE MICROTEST 11 AND 13
1163          000024                    PW.RDEXT        = 24            ;READ EXT. TAPE STATUS (NOT SUPPORTED BY ALL TRANSPORTS
1164
1165                                    ;*
1166                                    ;BSEL1 CODES FOR WRITE TAPE CONTROL
1167                                    ;-
1168          000200                    WC.IFAD         = BIT7          ;IFAD - FORMATTER ADDRESS
1169          000100                    WC.IOTAD        = BIT6          ;ITADO  - TRANSPORT ADDRESS BIT 0
1170          000040                    WC.I1TAD        = BIT5          ;ITAD1  - TRANSPORT ADDRESS BIT 1
1171          000020                    WC.I5RESV       = BIT4          ;IRESV5 - RESERVED #5
1172          000010                    WC.IREW         = BIT3          ;IREW   - REWIND
1173          000004                    WC.IRWU         = BIT2          ;IRWU   - REWIND AND UNLOAD
1174          000002                    WC.IFEN         = BIT1          ;IFEN   - FORMATTER ENABLE
1175          000001                    WC.IGO          = BIT0          ;GO
1176
1177                                    ;*
1178                                    ;BSEL1 CODES FOR WRITE FORMAT
1179                                    ;-
1180          000200                    WF.IHISP        = BIT7          ;IHISP  - HIGH SPEED
1181          000100                    WF.IWRT         = BIT6          ;IWRT   - WRITE
1182          000040                    WF.IREV         = BIT5          ;IREV   - REVERSE
1183          000020                    WF.IWFM         = BIT4          ;IWFM   - WRITE FILE MARK
1184          000010                    WF.IEDIT        = BIT3          ;IEDIT  - EDIT
1185          000004                    WF.IERASE       = BIT2          ;IERASE - ERASE
1186          000002                    WF.I3RESV       = BIT1          ;IRESV3 - RESERVED #3
1187          000001                    WF.I4RESV       = BIT0          ;IRESV4 - RESERVED #4
1188
1189                                    ;*
1190                                    ;BSEL1 CODES FOR WRITE MISCELLANEOUS SUBCOMMAND
1191                                    ;-
1192          000200                    MS.EXT          = BIT7          ;INVERT SENSE OF EXTENDED FEATURES SWITCH
1193          000020                    MS.RSFIFO       = BIT4          ;RESET FIFO AND INPUT PARITY ERRORR
1194          000010                    MS.RSTAPE       = BIT3          ;RESET TAPE STATUS IN 2 FLIP-FLOPS
1195          000006                    MS.ATTN         = BIT2!BIT1     ;ATTENTION TRIGGER FIELD
1196          000001                    MS.RSD          = BIT0          ;RESET TIMER A,B THEN DELAY TIMES IN SEL2
```

```
1198                                    ;+
1199                                    ; MS.ATTN SUBCODES
1200                                    ;-
1201        000000                              MSA.NOP = 0*2           ;NO-OP (NOTHING TRIGGERED)
1202        000002                              MSA.VOL = 1*2           ;SIMULATE ON-LINE/OFF-LINE TRANSISTION
1203        000004                              MSA.NRAM= 2*2           ;FORCE NON-FATAL RAM ERROR (FORCES ERRCODE 54)
1204        000006                              MSA.FRAM= 3*2           ;FORCE FATAL RAM ERROR (CAUSES SCE TO SET)
1205                                    ;+
1206                                    ; WRITE SUBSYSTEM WRITE NPR BSEL1 BIT DEFINITIONS
1207                                    ;-
1208        000200                      NP.IR           = BIT7          ;INTERRUPT REQUEST (0-1 TRANSITION)
1209        000100                      NP.OUT          = BIT6          ;TAPE DATA DIRECTION OUT (0= IN)
1210        000040                      NP.LOOP         = BIT5          ;ENABLE TRANSPORT LOOPBACK
1211        000020                      NP.WRP          = BIT4          ;WRITE CORRECT PARITY (SET=0 TO WRITE WRONG)
1212                                    ;+
1213                                    ; READ STATUS MESSAGE BUFFER BIT DEFINITIONS
1214                                    ;-
1215
1216        C00200                      S2.DIM          = BIT7          ;WORD #9 BYTE 2 DATA IN MISS
1217        000100                      S2.ILW          = BIT6          ;               ILW H
1218        000040                      S2.OUTRDY       = BIT5          ;               OUT RDY H
1219        000020                      S2.INRDY        = BIT4          ;               IN RDY H
1220        000010                      S2.ATIMR        = BIT3          ;               TIMER A FLAG H
1221        000004                      S2.BTIMR        = BIT2          ;               TIMER B FLAG H
1222        000003                      S2.UNDEF        = BIT1+BIT0     ;(UNDEFINED)
1223        100000                      S1.PARIN        = BIT15         ;WORD #8 BYTE 1 PARIN H
1224        040000                      S1.I2RESV       = BIT14         ;               IRESV2
1225        020000                      S1.I1RESV       = BIT13         ;               IRESV1
1226        010000                      S1.IEOT         = BIT12         ;               IEOT L
1227        004000                      S1.IIDENT       = BIT11         ;               IIDENT H
1228        002000                      S1.ICER         = BIT10         ;               ICER H
1229        001000                      S1.IFMK         = BIT9          ;               IFMK H
1230        000400                      S1.IHER         = BIT8          ;               IHER H
1231        000200                      SO.ISPEED       = BIT7          ;WORD #8 BYTE 0 ISPEED H
1232        000100                      SO.IRDY         = BIT6          ;               IRDY L
1233        000040                      SO.IONL         = BIT5          ;               IONL L
1234        000020                      SO.ILDP         = BIT4          ;               ILDP L
1235        000010                      SO.IDBY         = BIT3          ;               IDBY L
1236        000004                      SO.IRWD         = BIT2          ;               IRWD L
1237        000002                      SO.IFBY         = BIT1          ;               IFBY L
1238        000001                      SO.IFPT         = BIT0          ;               IFPT L
```

SPECIAL MACROS AND OPDEFS.

```
1240                                    .SBTTL  SPECIAL MACROS AND OPDEFS.
1241
1242                                ;+
1243                                ;SAVE GENERAL REGS 1 TO 5
1244                                ;-
1245
1246                                    .MACRO  SAVREG
1247                                    JSR     R5,REGSAV
1248                                    .ENDM
1249
1250                                ;+
1251                                ; MACRO TO FORCE AN ERROR
1252                                ;-
1253                                .MACRO  FORCERROR       TAG,NOTSSR
1254                                .NLIST
1255                                .IIF NDF LISTALL, .NLIST
1256                                .LIST
1257                                .IF B NOTSSR
1258                                    MOV     TSSR(R5),R1     ;READ TSSR
1259                                .ENDC
1260                                    MOV     FORCER,FORCER   ;IS FORCER SET? (LEAVE C BIT ALONE)
1261                                    BNE     TAG             ;BR IF YES
1262                                .NLIST
1263                                .IIF NDF LISTALL, .LIST
1264                                .LIST
1265                                .ENDM
1266
1267                                ;+
1268                                ; MACRO TO FORCE AN EXIT TO AVOID SECTION ITERATIONS
1269                                ;       WILL EXIT TO A LABEL IF FORCER IS NEGATIVE
1270                                ;       SO TO FORCE ERRORS AND EXIT ON 1 ERROR SET
1271                                ;       FORCER TO 177777
1272                                ;       TO FORCE ERRORS AND ITERATIONS SET FORCER TO 1.
1273                                ;-
1274                                .MACRO  FORCEXIT        TAG
1275                                .NLIST
1276                                .IIF NDF LISTALL, .NLIST
1277                                .LIST
1278                                    MOV     FORCER,FORCER   ;IS FORCER NEGATIVE?
1279                                    BMI     TAG             ;BR IF YES
1280                                .NLIST
1281                                .IIF NDF LISTALL, .LIST
1282                                .LIST
1283                                .ENDM
1284                                ;+
1285                                ; MACRO TO INCREMENT ERROR COUNTS
1286                                ;-
1287                                .MACRO  NEXT.ERRNO
1288                                .NLIST
1289                                ;;;.IIF NDF LISTALL, .NLIST
1290                                    ERRNO=ERRNO+1
1291                                ;;;.IIF NDF LISTALL, .LIST
1292                                .LIST
1293                                .ENDM
```

SPECIAL MACROS AND OPDEFS.

```
                                ;+
                                ;MACRO TO PERFORM XOR
                                ;-

                                        .MACRO  XOR     A,B
                                        MOV     A,-(SP)
                                        BIC     B,(SP)
                                        BIC     A,B
                                        BIS     (SP)+,B
                                        .ENDM

        000000                          EN=0                            ; INITIALIZE ERROR NUMBER
                                        .SBTTL  FORCER  - FORCE ERROR FLAG

                                ;
                                ; THE FOLLOWING LOCATIONS MAY BE PATCHED BY THE USER
                                ; TO OBTAIN THE RESULTS DESCRIBED FOR EACH.
                                ;

002166  000000                  FORCER::       0       ; FORCE TYPE ALL HARD ERRORS (THE ONES CALLED -
                                               ; - BY THE MACRO "IFERROR").  AN ERROR NEED NOT -
                                               ; - EXIST, JUST ASSUME AND TYPE THE MESSAGE.
```

GLOBAL DATA SECTION

```
                                        .SBTTL  GLOBAL DATA SECTION

                                ;++
                                ;THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
                                ;IN MORE THAN ONE TEST.
                                ;--

                                ;
                                ;THE FOLLOWING DATA ARE SET FOR EACH UNIT AT INIT TIME.
                                ;SINGLE UNIT DEFAULTS (LISTED) ARE IN THE DEFAULT P-TABLE.
                                ;
002170  000000                  EPRTSW::        .WORD   0       ;PRINT SWITCH
002172  000000                  UNITN::         .WORD   0       ;UNIT # UNDER TEST.
002174  000000                  QVP::           .WORD   0       ;QUICK VERIFY FLAG.
002176  000000                  CSRADDR::       .WORD   0       ;ADDRESS OF CSR FOR CURRENT DEVICE
002200  000224                  IVEC::          .WORD   224     ;INTERRUPT VECTOR
002202  000200                  IPRI::          .WORD   PRI04   ;INTERRUPT PRIORITY.
002204  000000                  TSTCNT::        .WORD   0       ;NUMBER OF TESTS RUN IN THIS PASS
002206  000000                  LOOPCNT::       .WORD   0       ;REMAINING ITERATION COUNT FOR TEST
002210  000000                  DEVCNT::        .WORD   0       ;NUMBER OF DEVICE UNDER TEST
002212  000000                  FATFLG::        .WORD   0       ;SET IF FATAL ERROR IS DETECTED IN TEST
002214  000000                  INTRECV::       .WORD   0       ;SET IF TAPE INTERRUPT WAS RECEIVED
002216  000000                  EXTFEA::        .WORD   0       ;EXTENDED FEATURES SOFTWARE SW 0=OFF;1=ON
002220  000000                  BENBSW::        .WORD   0       ;BUFFER ENABLE SWITCH SW 0=OFF;1=ON
002222  000000                  EXPD::          .WORD   0       ;EXPECTED RAM DATA FOR PRAMPKT ROUTINE
002224  000000                  RECV::          .WORD   0       ;RECEIVED RAM DATA FOR PRAMPKT ROUTINE
002226  000000                  ERRHI::         .WORD   0       ;HIGH ADDRESS MEMORY ERROR
002230  000000                  ERRLO::         .WORD   0       ;LOW ADDRESS MEMORY ERROR
002232                          RAMDATA::       .BLKW   16.     ;DATA READ FROM RAM PACKET OR MESSAGE BUF AREA
002272  000000                  RAMSIZ::        .WORD   0       ;RAM DATA SIZE FOR PRAMPKT ROUTINE
002274  000000                  RCVHIADD::      .WORD   0       ;RECEIVED BUFFER HIGH ADDRESS
002276  000000                  RCVLOADD::      .WORD   0       ;RECEIVED BUFFER LOW ADDRESS
002300  000000                  COUNT::         .WORD   0       ;TEST COUNT PATTERN
002302  000000                  DATA::          .WORD   0       ;TEST DATA
002304  000000                  TSTFLAG::       .WORD   0       ;TEST FLAG WORD
002306  000000                  TSTPTR::        .WORD   0       ;TSTBLK POINTER
002310  000000                  PRMNO::         .WORD   0       ;PRINT ROUTINE TEMP
002312                          EXPMSG::        .BLKB   100.    ;EXPECTED MESSAGE BUFFER DATA
002456                          RECMSG::        .BLKB   100.    ;RECEIVED MESSAGE BUFFER DATA
002622                          TMPBFR::        .BLKB   80.     ;TEMPORARY STORAGE FOR PRINT
```

```
                                        .SBTTL  TSTBLK  - TEST DATA TABLE

                                ;+
                                ;
                                ;THIS TABLE CONTAINS TEST DATA USED IN SEVERAL TESTS
                                ;
                                ;IN SEQUENCE THE DATA IS:
                                ;
                                ;       ALL ZEROS
                                ;       ALL ONES
                                ;       WALKING ONES
                                ;       WALKING ZEROS
                                ;       ALTERNATING ONES AND ZEROS
                                ;
                                ;-

002742                          TSTBLK::
002742  000000                          .WORD   0               ;ALL ZEROS
002744  177777                          .WORD   177777          ;ALL ONES
002746  000001                          .WORD   BIT0            ;DATA FOR WALKING ONES
002750  000002                          .WORD   BIT1
002752  000004                          .WORD   BIT2
002754  000010                          .WORD   BIT3
002756  000020                          .WORD   BIT4
002760  000040                          .WORD   BIT5
002762  000100                          .WORD   BIT6
002764  000200                          .WORD   BIT7
002766  000400                          .WORD   BIT8
002770  001000                          .WORD   BIT9
002772  002000                          .WORD   BIT10
002774  004000                          .WORD   BIT11
002776  010000                          .WORD   BIT12
003000  020000                          .WORD   BIT13
003002  040000                          .WORD   BIT14
003004  100000                          .WORD   BIT15
003006  177776                          .WORD   ^CBIT0          ;DATA FOR WALKING ZEROS
003010  177775                          .WORD   ^CBIT1
003012  177773                          .WORD   ^CBIT2
003014  177767                          .WORD   ^CBIT3
003016  177757                          .WORD   ^CBIT4
003020  177737                          .WORD   ^CBIT5
003022  177677                          .WORD   ^CBIT6
003024  177577                          .WORD   ^CBIT7
003026  177377                          .WORD   ^CBIT8
003030  176777                          .WORD   ^CBIT9
003032  175777                          .WORD   ^CBIT10
003034  173777                          .WORD   ^CBIT11
003036  167777                          .WORD   ^CBIT12
003040  157777                          .WORD   ^CBIT13
003042  137777                          .WORD   ^CBIT14
003044  077777                          .WORD   ^CBIT15
003046  125252                          .WORD   125252          ;ALTERNATING ONES, ZEROS
003050  052525                          .WORD   052525          ;ALTERNATING ONES, ZERO OPPOSITE FROM ABOVE
003052                          TBLEND==.
```

GLOBAL ENVIRONMENT STORAGE

```
                                        .SBTTL  GLOBAL ENVIRONMENT STORAGE
                                ;
                                ;STORAGE FOR DEVICE REGISTERS
                                ;
003052  000000  100000  000000  DUMMY:  0,100000,0,0    ;DUMMY DEVICE REGISTERS...
003062  000000  000000  000000          0,0,0,0,0,0,0,0
                                                        ;...FOR MULTI-UNIT CHECKOUT.

003102  000000                  DUFLG::         .WORD   0               ;"DROPPED UNIT" FLAG.
                                                                        ;INHIBITS CODE IN "CLEAN-UP".
003104  000000                  NODEV::         .WORD   0               ;FLAG TO SAY NO DEVICE.

003106  000000                  TEMP1::         .WORD   0               ;SOME TEMP LOCATIONS.
003110  000000                  TEMP2::         .WORD   0
003112  000000                  XXCOMM::        .WORD   0               ;XXDP+ COMM BLOCK POINTER.
003114  000000                  FREE::          .WORD   0               ;1ST FREE MEMORY ADDRESS...
003116  000000                  FRESIZ::        .WORD   0               ;...AND SIZE (IN WORDS).
003120  000000                  FREEHI: .WORD   0               ;LAST WORD IN FREE SPACE
003122  C00000                  KTFLG::         .WORD   0               ;KT11, MEM AVAIL FLAG -
                                                                        ;- .WORD        0 = <24K OR NO KT -
                                                                        ;- NZ = >24K AND KT.
003124  000000                  KTENABLE::      .WORD   0               ;SET BY TEST ROUTINES TO FLAG >28K UNDER TEST
003126  000000                  NXMFLG::        .WORD   0               ;SET IF WE CAN TEST CLEARED OTHERWISE
003130  000000                  NXMLO::         .WORD   0               ;NXM LO ADDRESS BITS
003132  000000                  NXMHI::         .WORD   0               ;NXM HI ADDRESS BITS FOR DAL'S 16-21
003134  000000                  T23A::          .WORD   0               ;11/23A FLAG
003136  000000                  T23B::          .WORD   0               ;11/23B FLAG
003140  000000                  T3BFLG::        .WORD   0               ;TEST 3B FLAG ↑O
003142  002000                  PST32W::        .WORD   2000            ;32W BLOCK ADDRESS FOR 32K START
003144  000000                  SIFLAG::        .WORD   0               ;
003146  000000                  BADDAT::        .WORD   0               ;ACTUAL DATA
003150  000000                  GDDAT::         .WORD   0               ;EXPECTED DATA
003152  000000                  LOOPFL::        .WORD   0
003154                          CTAB::                                  ;CONFIGURATION TABLES.
003154  000000                  CTABM::         .WORD   0               ;CONFIG WORK.
003156  000000                                  .WORD   0
003160  000000                                  .WORD   0
003162  000000                                  .WORD   0
003164  177777                                  .WORD   -1              ;END OF MEM TABLE.
003166                          CTABE::
                                ;ERROR STATISTICS TABLE (1 WORD PER UNIT), 64 UNITS MAX:
                                ;
                                ;       0       =       UNIT NOT TESTED
                                ;       100000  =       UNIT ONLINE, NO ERRORS
                                ;       10XXXX  =       UNIT ONLINE, ENCOUNTERED XXXX ERRORS
                                ;       160000  =       UNIT DROPPED, NON-EXISTENT DEVICE REGISTER
                                ;       160001  =       UNIT DROPPED, NOT IDLE AT START
                                ;       14XXXX  =       UNIT DROPPED, ENCOUNTERED XXXX ERRORS
                                ;
003166                          ERTABL:         .BLKW   64.
003366  000000                  ERTABE:         .WORD   0

003370  000000                  SKIPT:  .WORD   0                ;1=SKIP SUBTEST 0=NO SKIP OF SUBTEST
```

GLOBAL TEXT MESSAGES

```
                                        .SBTTL  GLOBAL TEXT MESSAGES
                                ;++
                                ; THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS,
                                ; MESSAGES, AND ASCII INFORMATION THAT ARE USED IN
                                ; MORE THAN ONE TEST.
                                ;--
                                ;+
                                ;NAMES OF DEVICES SUPPORTED
                                ;-
003372                                  DEVTYP  <TSV05>
003372                          L$DVTYP::
003372  124     123     126             .ASCIZ  /TSV05/
                                        .EVEN

                                ;+
                                ;TEST DESCRIPTION
                                ;-
003400                                  DESCRIPT <**** TSV05 LOGIC DIAGNOSTIC - CHK CABLES-TRANSPORT IF ERR ****>
003400                          L$DESC::
003400  052     052     052             .ASCIZ  /**** TSV05 LOGIC DIAGNOSTIC - CHK CABLES-TRANSPORT IF ERR ****/
                                        .EVEN

                                ;+
                                ;BIT TO ASCII CONVERSION FOR TSSR REGISTER
                                ;-
003500  003540  003543  003547  TSSRBIT::        .WORD   1$,2$,3$,4$,5$,6$,7$,8$
003520  003601  003605  003611                  .WORD   9$,10$,11$,12$,13$,14$,15$,16$
003540    123     103     000   1$:     .ASCIZ  'SC'
003543    102     111     105   2$:     .ASCIZ  'BIE'
003547    123     103     105   3$:     .ASCIZ  'SCE'
003553    122     115     122   4$:     .ASCIZ  'RMR'
003557    116     130     115   5$:     .ASCIZ  'NXM'
003563    116     102     101   6$:     .ASCIZ  'NBA'
003567    102     111     124   7$:     .ASCIZ  'BIT9'
003574    102     111     124   8$:     .ASCIZ  'BIT8'
003601    123     123     122   9$:     .ASCIZ  'SSR'
003605    117     106     114   10$:    .ASCIZ  'OFL'
003611    102     111     124   11$:    .ASCIZ  'BIT5'
003616    102     111     124   12$:    .ASCIZ  'BIT4'
003623    102     111     124   13$:    .ASCIZ  'BIT3'
003630    102     111     124   14$:    .ASCIZ  'BIT2'
003635    102     111     124   15$:    .ASCIZ  'BIT1'
003642    102     111     124   16$:    .ASCIZ  'BIT0'
                                .EVEN
003650    124     123     123   SFIERR: .ASCIZ  'TSSR ERROR AFTER SOFT INIT'
003703    124     123     123   SFHERR: .ASCIZ  'TSSR ERROR AFTER BUS RESET'
003736    040     040     116   NXR:    .ASCIZ  /  NON-EXISTANT DEVICE REGISTER/
003775    045     101     040   NXRX:   .ASCIZ  /%A  ADDRESS: %O6/
004016    045     101     040   TSSX:   .ASCII  /%A  TSBA,TSSR EXP'D: %O6%A,%O6%N/
004056    045     101     040           .ASCIZ  /%A  TSBA,TSSR REC'D: %O6%A,%O6/
004115    045     116     045   FUSI:   .ASCII  /%N%A/
004121    040     040     125   USI:    .ASCIZ  /  UNEXPECTED INTERRUPT/
004150    040     040     111   NSI:    .ASCIZ  /  INTERRUPT EXPECTED, NOT RECEIVED/
004213    045     116     045   FNOINTR:        .ASCII  /%N%A/
004217    040     040     116   NOINTR: .ASCIZ  /  NO INTERRUPT WAS GENERATED/
004254    040     040     111   IFAULT: .ASCIZ  /  INTERRUPT FAULT/
004276    045     101     040   INTX:   .ASCIZ  /%A  CPU PC: %O6%A  TSBA: %O6/
```

GLOBAL TEXT MESSAGES

```
1540 004333 040 040 042 NOINIT: .ASCIZ  /  "BUS-INIT" DIDN'T INITIALIZE CONTROLLER/
1541 004405 040 040 042 NSINIT: .ASCIZ  /  "SOFT-INIT" DIDN'T INITIALIZE THE DPU/
1542 004455 040 040 042 BRINIT: .ASCIZ  /  "BUS-RESET" DIDN'T INITIALIZE THE DPU/
1543 004525 000         NUL:    .ASCIZ  //
1544 004526 045 116 000 NULCR:  .ASCIZ  /%N/
1545 004531 045 101 040 EXPGOT: .ASCIZ  /%A EXP'D: %O6%A, REC'D: %O6/
1546 004565 045 116 045 EXPGT2: .ASCIZ  /%N%A EXP'D: %O6%A, %O6%N%A REC'D: %O%A, %O6/
1547 004641 045 101 040 DUAD12: .ASCIZ  /%A REG(W) WRITTEN TO: %O6%A REG(R) READ: EXP'D: %O6%A, REC'D: %O6/
1548 004743 122 101 115 PKTRAM::         .ASCIZ  'RAM Contents Do Not Match Packet Sent'
1549 005011 040 040 103 SCME:   .ASCIZ  /  CONFIG DOESN'T MATCH MFG. MASTER/
1550 005054 127 122 111 WRTMSG: .ASCIZ  'WRITE CHARACTERISTICS Failed'
1551 005111 124 123 123 WRTERR: .ASCIZ  'TSSR Incorrect After WRITE Command, More Bits Set Than SSR'
1552 005204 124 123 123 RDERR:  .ASCIZ  'TSSR Incorrect After READ Command, More Bits Set Than SSR'
1553 005276 106 101 124 SCHERR: .ASCIZ  'FATAL ERROR IN SUBTEST - CHECK TAPE,CABLES,TRANSPORT etc.'
1554 005370 105 122 122 RETERR: .ASCIZ  'ERROR IN SUBTEST - WRITE DATA RETRY FIVE TIMES FAILED'
1555 005456 045 116 045 NOMEM:  .ASCIZ  '%N%A ***** NO NXM ADDRESS--CANNOT TEST NXM TIMEOUT. ******%N'
1556 005552 045 116 045 M8186:  .ASCIZ  '%N%A ****************** 11/23A SYSTEM ******************%N'
1557 005643 045 116 045 M8189:  .ASCIZ  '%N%A ****************** 11/23B SYSTEM ******************%N'
1558                            .EVEN
1559                            .SBTTL  GLOBAL ERROR REPORT SECTION
1560
1561                    ;++
1562                    ; THE GLOBAL ERROR REPORT SECTION CONTAINS THE PRINTB AND PRINTX
1563                    ; CALLS THAT ARE USED IN MORE THAN ONE TEST.
1564                    ; ASCII TEXT STRINGS ARE FOUND IN THE GLOBAL TEXT SECTION.
1565                    ;--
1566 005734                     BGNMSG  NXRERR          ;NON-EXISTANT DEVICE REGISTER.
       005734           NXRERR::
1567 005734                     PRINTX  #NXRX,NODEV     ;NODEV = NEXM ADDRESS.
       005734 013746 003104     MOV     NODEV,-(SP)
       005740 012746 003775     MOV     #NXRX,-(SP)
       005744 012746 000002     MOV     #2,-(SP)
       005750 010600            MOV     SP,R0
       005752 104415            TRAP    C$PNTX
       005754 062706 000006     ADD     #6,SP
1568 005760 004737 005766       JSR     PC,EXTEND       ; PRINT EXTENSION IF REQUIRED.
1569 005764                     ENDMSG
       005764           L10002:
       005764 104423            TRAP    C$MSG
1570                    ;
1571                    ; THIS ROUTINE APPENDS A UNIQUE EXTENSION (IF REQUIRED)
1572                    ; TO ANY OF THE ABOVE ERROR SIGNATURES.
1573                    ;
1574 005766 005727      EXTEND: TST     (PC)+
1575 005770 000000      EXTA:   0                       ; 0 = NO EXTENSION.
1576 005772 001402              BEQ     1$
1577 005774 004777 177770       JSR     PC,@EXTA        ; APPEND EXTENSION TEXT.
1578 006000             1$:     PRINTX  #NULCR          ; PRINT A BLANK LINE
       006000 012746 004526     MOV     #NULCR,-(SP)
       006004 012746 000001     MOV     #1,-(SP)
       006010 010600            MOV     SP,R0
       006012 104415            TRAP    C$PNTX
       006014 062706 000004     ADD     #4,SP
1579 006020 000207              RTS     PC
```

```
                        .SBTTL  PRITSSR - PRINT TSSR CONTENTS

                ;+
                ;
                ;ROUTINE TO DISPLAY THE CONTENTS, AND BIT DEFINITIONS, OF
                ;THE TSSR REGISTER. THIS ROUTINE IS NORMALLY CALLED ONLY
                ;BY A MESSAGE PRINTING ROUTINE
                ;
                ;INPUTS:
                ;
                ;       R1      CONTENTS OF TSSR
                ;
                ;SUBORDINATE ROUTINES:
                ;
                ;       CHKAMB  CHECK FOR AMBIGUOUS CONTENTS
                ;
                ;-

006022          PRITSSR:
006022                  SAVREG                          ;SAVE GENERAL REGISTERS
006026  010104          MOV     R1,R4                   ;SAVE THE TSSR CONTENTS
006030                  PRINTB  #TSSRFOR,R4             ;PRINT THE CONTENTS OF TSSR
006030  010446          MOV     R4,-(SP)
006032  012746  006505  MOV     #TSSRFOR,-(SP)
006036  012746  000002  MOV     #2,-(SP)
006042  010600          MOV     SP,R0
006044  104414          TRAP    C$PNTB
006046  062706  000006  ADD     #6,SP
006052  010400          MOV     R4,R0                   ;GET TSSR BACK FOR CHKAMB
006054  004737  016134  JSR     PC,CHKAMB               ;ARE CONTENTS AMBIGUOUS ?
006060  103410          BCS     5$                      ;BRANCH IF NOT
006062                  PRINTX  #AMBTSSR                ;SHOW CONTENTS ARE AMBIGUOUS
006062  012746  006725  MOV     #AMBTSSR,-(SP)
006066  012746  000001  MOV     #1,-(SP)
006072  010600          MOV     SP,R0
006074  104415          TRAP    C$PNTX
006076  062706  000004  ADD     #4,SP
006102  010403          5$:     MOV     R4,R3           ;CONTENTS OF TSSR
006104  042703  001476          BIC     #HIADDR!FATERR!TERCLS,R3        ;CLEAR ALL MULTIPLE BIT FIELDS
006110  001434          BEQ     20$                     ;NO BITS ARE SET
006112  012702  002622  MOV     #TMPBFR,R2              ;TEMPORARY ASCII BUFFER
006116  012701  003500  MOV     #TSSRBIT,R1             ;ASCII EQUIVALENT OF BITS
006122  005703          10$:    TST     R3              ;REMAINING BITS TO CONVERT
006124  001413          BEQ     15$                     ;BRANCH WHEN ALL ARE DONE
006126  000241          CLC                             ;CLEAR CARRY FOR SHIFT
006130  006103          ROL     R3                      ;SHIFT NEXT BIT TO CARRY
006132  103006          BCC     13$                     ;BRANCH IF BIT NOT SET
006134  011100          MOV     (R1),R0                 ;POINTER TO BIT DEFINITION
006136  112022          11$:    MOVB    (R0)+,(R2)+     ;MOVE ASCIZ TO BUFFER
006140  001376          BNE     11$                     ;MOVE ALL BITS
006142  112762  000054  177777  MOVB    #',,-1(R2)      ;INSERT A COMMA TO TERMINATE
006150  005721          13$:    TST     (R1)+           ;POINT TO NEXT DESCRIPTION
006152  000763          BR      10$                     ;GET THE REMAINING BITS
006154  105042          15$:    CLRB    -(R2)           ;TERMINATE THE LINE
006156                  PRINTX  #TSSDEF,#TMPBFR         ;PRINT THE BIT DEFINITIONS
006156  012746  002622  MOV     #TMPBFR,-(SP)
006162  012746  006676  MOV     #TSSDEF,-(SP)
```

PRITSSR - PRINT TSSR CONTENTS

```
                006166  012746  000002                  MOV     #2,-(SP)
                006172  010600                          MOV     SP,R0
                006174  104415                          TRAP    C$PNTX
                006176  062706  000006                  ADD     #6,SP
     1625
     1626       006202  010403              20$:        MOV     R4,R3           ;GET THE TSSR CONTENTS
     1627       006204  042703  177761                  BIC     #^CTERCLS,R3    ;CLEAR ALL BUT TERMINATION
     1628       006210  016303  006766                  MOV     TCOCOD(R3),R3   ;GET THE TERMINATION CODE MEANING
     1629       006214                                  PRINTX  #TCOASC,R3      ;PRINT THE TERMINATION CODE
                006214  010346                          MOV     R3,-(SP)
                006216  012746  006566                  MOV     #TCOASC,-(SP)
                006222  012746  000002                  MOV     #2,-(SP)
                006226  010600                          MOV     SP,R0
                006230  104415                          TRAP    C$PNTX
                006232  062706  000006                  ADD     #6,SP
     1630       006236  010403                          MOV     R4,R3           ;TSSR CONTENTS AGAIN
     1631       006240  042703  177717                  BIC     #^CFATERR,R3    ;CLEAR ALL BUT FATAL TERMINATION
     1632       006244  001416                          BEQ     25$             ;DON'T PRINT IF ZERO
     1633       006246  C06203                          ASR     R3
     1634       006250  006203                          ASR     R3
     1635       006252  006203                          ASR     R3              ;ALINE TERMINATION CODE FOR INDEX
     1636       006254  016303  007326                  MOV     TSFCOD(R3),R3   ;GET THE FATAL TERMINATION CODE
     1637       006260                                  PRINTX  #TFCASC,R3      ;PRINT THE FATAL TERMINATION CODE
                006260  010346                          MOV     R3,-(SP)
                006262  012746  006627                  MOV     #TFCASC,-(SP)
                006266  012746  000002                  MOV     #2,-(SP)
                006272  010600                          MOV     SP,R0
                006274  104415                          TRAP    C$PNTX
                006276  062706  000006                  ADD     #6,SP
     1638       006302  042704  176377      25$:        BIC     #^CHIADDR,R4    ;CLEAR ALL BUT EXTENDED ADDRESS
     1639       006306  001411                          BEQ     30$             ;DON'T PRINT IF ZERO
     1640       006310                                  PRINTX  #TEXASC,R4      ;PRINT THE EXTENDED ADDRESS BITS
                006310  010446                          MOV     R4,-(SP)
                006312  012746  006525                  MOV     #TEXASC,-(SP)
                006316  012746  000002                  MOV     #2,-(SP)
                006322  010600                          MOV     SP,R0
                006324  104415                          TRAP    C$PNTX
                006326  062706  000006                  ADD     #6,SP
     1641       006332  013703  002170      30$:        MOV     EPRTSW,R3               ;PRINT MEAASGE BUFFER ADDRESS
     1642       006336                                  PRINTX  R3                      ;PRINT PROPER MESSAGE
                006336  010346                          MOV     R3,-(SP)
                006340  012746  000001                  MOV     #1,-(SP)
                006344  010600                          MOV     SP,R0
                006346  104415                          TRAP    C$PNTX
                006350  062706  000004                  ADD     #4,SP
     1643       006354  000207                          RTS     PC              ;RETURN TO CALLER
```

PRITSSR - PRINT TSSR CONTENTS

```
1655 006356      045      116      045  EPRT1:   .ASCIZ  '%N%A *****CHECK CABLES BETWEEN M7196 AND TRANSPORT*****'
1656 006446      045      116      045  EPRT2:   .ASCIZ  '%N%A *****CHECK TRANSPORT*****'
1662 006505      045      116      045  TSSRFOR:         .ASCIZ  '%N%A TSSR = %O6'
1663 006525      045      116      045  TEXASC:          .ASCIZ  '%N%A Extended Address Bits = %O6'
1664 006566      045      116      045  TCOASC:          .ASCIZ  '%N%A Termination Class Code = %T'
1665 006627      045      116      045  TFCASC:          .ASCIZ  '%N%A Fatal Termination Class Code = %T'
1666 006676      045      116      045  TSSDEF:          .ASCIZ  '%N%A TSSR Bits Set: %T'
1667 006725      045      116      045  AMBTSSR:         .ASCIZ  '%N%A TSSR Contents Are Ambiguous'
1668                                          .EVEN
1669 006766  007006  007031  007057  TCOCOD:  .WORD   1$,2$,3$,4$,5$,6$,7$,8$
1670 007006      116      157      162  1$:      .ASCIZ  'Normal Termination'
1671 007031      124      145      162  2$:      .ASCIZ  'Termination Condition'
1672 007057      124      141      160  3$:      .ASCIZ  'Tape Status Alert'
1673 007101      106      165      156  4$:      .ASCIZ  'Function Reject'
1674 007121      122      145      143  5$:      .ASCIZ  'Recoverable Error - Tape Position One Record Down'
1675 007203      122      145      143  6$:      .ASCIZ  'Recoverable Error - Tape Was Not Moved'
1676 007252      125      156      162  7$:      .ASCIZ  'Unrecoverable Error'
1677 007276      106      141      164  8$:      .ASCIZ  'Fatal Controller Error'
1678                                          .EVEN
1679
1680 007326  007336  007372  007403  TSFCOD:  .WORD   1$,2$,3$,4$
1681 007336      111      156      164  1$:      .ASCIZ  'Internal Diagnostic Failure'
1682 007372      122      145      163  2$:      .ASCIZ  'Reserved'
1683 007403      102      165      163  3$:      .ASCIZ  'Bus Interface or Sanity Check Error'
1684 007447      122      145      163  4$:      .ASCIZ  'Reserved'
1685                                          .EVEN
```

PRIPKT  - PRINT THE ADDRESS/CONTENTS OF COMMAND PACKET

```
                                        .SBTTL  PRIPKT  - PRINT THE ADDRESS/CONTENTS OF COMMAND PACKET

                                ;+
                                ;THIS ROUTINE PRINTS THE ADDRESS AND CONTENTS OF A COMMAND PACKET.
                                ;THIS ROUTINE IS NORMALLY ONLY CALLED FROM A PRINT ROUTINE.
                                ;
                                ;INPUT:
                                ;
                                ;       R0      NUMBER OF WORDS IN PACKET
                                ;       R3      HIGH ORDER COMMAND PACKET ADDRESS
                                ;       R4      ADDRESS OF COMMAND PACKET
                                ;
                                ;       NOTE:   R3 IS IGNORED IF THE KTENABLE FLAG IS CLEAR.
                                ;-

007460                          PRIPKT::
007460                                  SAVREG                          ;SAVE THE REGISTERS
007464  010005                          MOV     R0,R5                   ;SAVE NO. OF WORDS IN PACKET
007466  C05737  003124                  TST     KTENABLE                ;ABOVE 28K UNDER TEST?
007472  001001                          BNE     10$                     ;BR IF YES
007474  005003                          CLR     R3                      ;SET HIGH ORDER ADDRESS TO 0
007476  010301                  10$:    MOV     R3,R1                   ;COPY HIGH ORDER ADDRESS
007500  010400                          MOV     R4,R0                   ;GET LOWER ADDRESS
007502  006100                          ROL     R0                      ;SHIFT BIT 15 INTO C BIT
007504  006101                          ROL     R1                      ;AND INTO HIGH ORDER.
007506                                  PRINTB  @PKTADD,R1,R4           ;PRINT PACKET ADDRESS
007506  010446                          MOV     R4,-(SP)
007510  010146                          MOV     R1,-(SP)
007512  012746  007644                  MOV     @PKTADD,-(SP)
007516  012746  000003                  MOV     #3,-(SP)
007522  010600                          MOV     SP,R0
007524  104414                          TRAP    C$PNTB
007526  062706  000010                  ADD     #10,SP
007532  010300                  15$:    MOV     R3,R0                   ;GET HIGH ORDER ADDRESS
007534  001404                          BEQ     20$                     ;BR IF NOT ABOVE 28K.
007536  010401                          MOV     R4,R1                   ;GET LOW ORDER ADDRESS
007540  004737  017406                  JSR     PC,SETMAP               ;SETUP PAR6 MAPPING FOR 18 BIT ADDRESS
007544  010004                          MOV     R0,R4                   ;GET RETURNED PAR6 ADDRESS BIAS
007546  005001                  20$:    CLR     R1                      ;SAVE WORD NUMBER
007550  012402                  25$:    MOV     (R4)+,R2                ;GET PACKET CONTENTS
007552                                  PRINTB  @PKTFRM,R1,R2           ;PRINT THE DATA
007552  010246                          MOV     R2,-(SP)
007554  010146                          MOV     R1,-(SP)
007556  012746  007606                  MOV     @PKTFRM,-(SP)
007562  012746  000003                  MOV     #3,-(SP)
007566  010600                          MOV     SP,R0
007570  104414                          TRAP    C$PNTB
007572  062706  000010                  ADD     #10,SP
007576  005201                          INC     R1                      ;NEXT WORD NUMBER
007600  020105                          CMP     R1,R5                   ;DONE ALL PACKET WORDS?
007602  002762                          BLT     25$                     ;LOOP TILL ALL DONE
007604  000207                          RTS     PC                      ;RETURN

007606    045     116     045   PKTFRM: .ASCIZ  '%N%A Packet Word #%D1%A = %06'
007644    045     116     045   PKTADD: .ASCIZ  '%N%A Packet Address = %01%05'
                                        .EVEN
```

```
                                        .SBTTL  PRIBXOR - PRINT EXPD, RECV AND XOR BYTE

                                ;+
                                ;PRINT EXPECTED DATA, RECEIVED DATA, AND XOR OF THE DATA BYTE
                                ;THIS ROUTINE IS NORMALLY CALLED ONLY FOR PRINT ROUTINES.
                                ;
                                ;INPUTS:
                                ;
                                ;       R1      RECEIVED DATA
                                ;       R2      EXPECTED DATA
                                ;
                                ;OUTPUT:
                                ;
                                ;       R0      XOR OF EXPECTED/RECEIVED DATA
                                ;-
007702                          PRIBXOR::
007702                                  SAVREG                          ;SAVE THE REGISTERS
007706  010203                          MOV     R2,R3                   ;EXPECTED DATA
007710                                  XOR     R1,R3                   ;FORM THE EXCLUSIVE OR
007720  012700  177400                  MOV     #^C<377>,R0             ;BYTE MASK
007724  040001                          BIC     R0,R1                   ;SAVE LOW BYTE RECV
007726  040002                          BIC     R0,R2                   ;SAVE LOW BYTE EXPD
007730  040003                          BIC     R0,R3                   ;SAVE LOW BYTE XOR
007732                                  PRINTB  #XORBFOR,R2,R1,R3 ;PRINT THE MESSAGE
007732  010346                          MOV     R3,-(SP)
007734  010146                          MOV     R1,-(SP)
007736  010246                          MOV     R2,-(SP)
007740  012746  007764                  MOV     #XORBFOR,-(SP)
007744  012746  000004                  MOV     #4,-(SP)
007750  010600                          MOV     SP,R0
007752  104414                          TRAP    C$PNTB
007754  062706  000012                  ADD     #12,SP
007760  010300                          MOV     R3,R0                   ;R0 HAS XOR ON RETURN
007762  000207                          RTS     PC                      ;RETURN TO CALLER

007764      045     116     045 XORBFOR:        .ASCIZ  '%N%A EXPD: %03%A RECV: %03%A XOR: %03'
                                        .EVEN
                                        .SBTTL  PRIXOR  - PRINT EXPD, RECV AND XOR
                                ;+
                                ;
                                ;PRINT EXPECTED DATA, RECEIVED DATA, AND XOR OF THE TWO
                                ;THIS ROUTINE IS NORMALLY CALLED ONLY FOR PRINT ROUTINES.
                                ;
                                ;INPUTS:
                                ;
                                ;       R1      RECEIVED DATA
                                ;       R2      EXPECTED DATA
                                ;
                                ;OUTPUT:
                                ;
                                ;       R0      XOR OF EXPECTED/RECEIVED DATA
                                ;-
010032                          PRIXOR::
010032                                  SAVREG                          ;SAVE THE REGISTERS
010036  010203                          MOV     R2,R3                   ;EXPECTED DATA
010040                                  XOR     R1,R3                   ;FORM THE EXCLUSIVE OR
010050                                  PRINTB  #XORFOR,R2,R1,R3 ;PRINT THE MESSAGE
```

PRIXOR  - PRINT EXPD, RECV AND XOR

```
        010050  010346                          MOV     R3,-(SP)
        010052  010146                          MOV     R1,-(SP)
        010054  010246                          MOV     R2,-(SP)
        010056  012746  010102                  MOV     #XORFOR,-(SP)
        010062  012746  000004                  MOV     #4,-(SP)
        010066  010600                          MOV     SP,R0
        010070  104414                          TRAP    C$PNTB
        010072  062706  000012                  ADD     #12,SP
  1779  010076  010300                          MOV     R3,R0           ;R0 HAS XOR ON RETURN
  1780  010100  000207                          RTS     PC              ;RETURN TO CALLER
  1781
  1782  010102     045     116     045  XORFOR: .ASCIZ  '<N><A EXPD: <06><A RECV: <06><A XOR: <06'
  1783                                          .EVEN
```

```
                                        .SBTTL  PRIEQU  - PRINT BIT NUMBERS AS ASCII EQUIVALENT

                                ;+
                                ;
                                ;ROUTINE TO CONVERT BIT VALUES TO ASCII AND PRINT THE STRING
                                ;THIS ROUTINE IS NORMALLY CALLED FROM A PRINT ROUTINE
                                ;
                                ;INPUTS:
                                ;
                                ;       R0      OCTAL VALUE TO CONVERT
                                ;       R1      TABLE OF POINTERS TO ASCII EQUIVALENT
                                ;
                                ;-

010150                          PRIEQU:
010150                                  SAVREG                          ;SAVE THE REGISTERS
010154  000207                         RTS     PC                      ;RETURN TO CALLER

                                        .SBTTL  PRIRAM  - PRINT RAM ADDRESS
                                ;+
                                ;
                                ;PRINT CONTROLLER RAM ADDRESS.
                                ;THIS ROUTINE IS NORMALLY CALLED ONLY FROM PRINT ROUTINES.
                                ;
                                ;INPUTS:
                                ;
                                ;       R4      RAM ADDRESS
                                ;
                                ;-
010156                          PRIRAM:
010156                                  SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
010162                                  PRINTB  #RAMFOR,R4              ;PRINT RAM ADDRESS IN ERROR
010162  010446                          MOV     R4,-(SP)
010164  012746  010206                  MOV     #RAMFOR,-(SP)
010170  012746  000002                  MOV     #2,-(SP)
010174  010600                          MOV     SP,R0
010176  104414                          TRAP    C$PNTB
010200  062706  000006                  ADD     #6,SP
010204  000207                         RTS     PC                      ;RETURN

010206      045     116     045 RAMFOR: .ASCIZ  '%N%A CONTROLLER RAM ADDRESS = %O6'
                                        .EVEN
```

```
                                        .SBTTL  PRIADD  - PRINT MEMORY ERROR ADDRESS
                                ;+
                                ;
                                ;PRINT MEMORY ADDRESS
                                ;THIS ROUTINE IS NORMALLY CALLED ONLY FROM PRINT ROUTINES.
                                ;
                                ; IMPLICIT INPUTS
                                ;
                                ;       ERRHI   - HIGH ORDER ADDRESS
                                ;       ERRLO   - LOW ORDER ADDRESS
                                ;
                                ;-
010250                          PRIADD:
010250                                  SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
010254  013700  002226                   MOV     ERRHI,R0        ;GET HIGH ADDRESSS
010260  013701  002230                   MOV     ERRLO,R1        ;GET LOW ADDRESS
010264  010102                          MOV     R1,R2           ;COPY LOW ADDRESS
010266  006101                          ROL     R1              ;SHIFT BIT 15 TO C BIT
010270  006100                          ROL     R0              ;SHIFT INTO HIGH ORDER
010272                                  PRINTB  #PRIA0,R0,R2    ;PRINT MEMORY ADDRESS IN ERROR
010272  010246                          MOV     R2,-(SP)
010274  010046                          MOV     R0,-(SP)
010276  012746  010320                  MOV     #PRIA0,-(SP)
010302  012746  000003                  MOV     #3,-(SP)
010306  010600                          MOV     SP,R0
010310  104414                          TRAP    C$PNTB
010312  062706  000010                  ADD     #10,SP
010316  000207                          RTS     PC              ;RETURN

010320  045  116  045  PRIA0:  .ASCIZ  '%N%A MEMORY ERROR ADDRESS = %01%05'
                                .EVEN

                                        .SBTTL  PRITADD - PRINT MEMORY TEST ADDRESS
                                ;+
                                ;
                                ;PRINT MEMORY ADDRESS
                                ;THIS ROUTINE IS NORMALLY CALLED ONLY FROM PRINT ROUTINES.
                                ;
                                ; IMPLICIT INPUTS
                                ;
                                ;       ERRHI   - HIGH ORDER ADDRESS
                                ;       ERRLO   - LOW ORDER ADDRESS
                                ;
                                ;-
010364                          PRITADD:
010364                                  SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
010370  013702  002226                   MOV     ERRHI,R2        ;GET HIGH ADDRESSS
010374  013701  002230                   MOV     ERRLO,R1        ;GET LOW ADDRESS
                                        ;MOV    R1,R2           ;COPY LOW ADDRESS
                                        ;ROL    R1              ;SHIFT BIT 15 TO C BIT
                                        ;ROL    R0              ;SHIFT INTO HIGH ORDER
010400                                  PRINTB  #PRIT0,R1       ;PRINT MEMORY ADDRESS LOW IN ERROR
010400  010146                          MOV     R1,-(SP)
010402  012746  010446                  MOV     #PRIT0,-(SP)
010406  012746  000002                  MOV     #2,-(SP)
010412  010600                          MOV     SP,R0
010414  104414                          TRAP    C$PNTB
```

PRITADD - PRINT MEMORY TEST ADDRESS

```
        010416  062706  000006                  ADD     #6,SP
   1867 010422                                  PRINTB  #PRIT1,R2       ;PRINT MEMORY ADDRESS HIGH IN ERROR
        010422  010246                          MOV     R2,-(SP)
        010424  012746  010511                  MOV     #PRIT1,-(SP)
        010430  012746  000002                  MOV     #2,-(SP)
        010434  010600                          MOV     SP,R0
        010436  104414                          TRAP    C$PNTB
        010440  062706  000006                  ADD     #6,SP
   1868 010444  000207                          RTS     PC              ;RETURN
   1869
   1870 010446     045     116     045  PRIT0:  .ASCIZ  '<N><A MEMORY TEST ADDRESS LOW = <06>'
   1871 010511     045     116     045  PRIT1:  .ASCIZ  '<N><A MEMORY TEST ADDRESS HIGH = <06>'
   1872                                         .EVEN
```

```
                                        .SBTTL  SPACE   - SPACE RECORDS (FORWARD AND REVERSE) COMMAND

                                ;+
                                ;
                                ;ROUTINE TO ISSUE A SPACE RECORDS
                                ;COMMAND (FORWARD OR REVERSE)
                                ;
                                ;INPUT:
                                ;
                                ;       R3      NUMBER OF RECORDS TO BE SPACED OVER
                                ;               BIT15 CONTROLS DIRECTION
                                ;               BIT15 = 0 IS FORWARD
                                ;               BIT15 = 1 IS REVERSE
                                ;       R5      FIRST DEVICE UNIBUS ADDRESS
                                ;
                                ;       REQUIRES A WRITE CHARACTERISTICS DONE PREVIOUSLY
                                ;
                                ;OUTPUT:
                                ;
                                ;       CARRY   SET - SPACE RECORDS COMMAND OK
                                ;               CLR - SPACE RECORDS FAILED
                                ;
                                ;
                                ;       R0      THE CONTENTS OF R4 IS MOVED TO R0
                                ;
                                ;IMPLICIT OUTPUT:
                                ;
                                ;       TAPE HAS BEEN MOVED
                                ;
                                ;SIDE EFFECTS:
                                ;
                                ;
                                ;-

010556                          SPACE::
010556                                  SAVREG                          ;SAVE THE GENERAL REGISTERS
010562  012737  000764  010750          MOV     #500.,SDELAY            ;SET UP DELAY
010570  012737  140010  010740          MOV     #140010,80$             ;SET UP COMMAND, SPACE FORWARD
010576  005703                          TST     R3                      ;CHECK FOR DIRECTION
010600  100403                          BMI     5$                      ;BR, IF REVERSE INDICATED
010602  010337  010742                  MOV     R3,90$                  ;LOAD UP NUMBER OF RECORDS TO SPACE
010606  000407                          BR      10$                     ;GO DO COMMAND
010610  042703  100000          5$:     BIC     #BIT15,R3               ;CLEAR DIRECTION BIT
010614  010337  010742                  MOV     R3,90$                  ;LOAD UP NUMBER OF RECORDS TO SPACE
010620  052737  000400  010740          BIS     #BIT8,80$               ;SET REVERSE BIT IN COMMAND PACKET
010626  012704  010740          10$:    MOV     #80$,R4                 ;SET UP R4 WITH PACKET ADDRESS
010632  010465  000000                  MOV     R4,TSDB(R5)             ;SEND OUT COMMAND
010636  004737  016340          15$:    JSR     PC,WAITF                ;WAIT FOR SSR
010642  103420                          BCS     20$                     ;BR, IF SSR IS SET AND OK
010644                                  DELAY   250             ;DELAY ABOUT .25 SECONDS
010644  012727  000250                  MOV     #250,(PC)+
010650  000000                          .WORD   0
010652  013727  002116                  MOV     L$DLY,(PC)+
010656  000000                          .WORD   0
010660  005367  177772                  DEC     -6(PC)
010664  001375                          BNE     .-4
```

SPACE  - SPACE RECORDS (FORWARD AND REVERSE) COMMAND

```
        010666  005367  177756                DEC     -22(PC)
        010672  001367                        BNE     .-20
  1925  010674  005337  010750                DEC     $DELAY                  ;BUMP DELAY COUNTER DOWN
  1926  010700  001356                        BNE     15$                     ;BR. IF MORE DELAY
  1927  010702  000411                        BR      60$                     ;BR IF TROUBLE CARRY = CLEAR
  1928  010704  016501  000002        20$:    MOV     TSSR(R5),R1             ;READ TSSR
  1929  010710  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
  1930  010714  020201                25$:    CMP     R2,R1                   ;ARE THEY OK
  1931  010716  001401                        BEQ     40$                     ;BR. IF EQUAL = OK
  1932  010720  000402                        BR      60$                     ;TROUBLE EXIT
  1933  010722  000261                40$:    SEC                             ;SET CARRY NO TROUBLE
  1934  010724  000401                        BR      70$                     ;EXIT
  1935  010726  000241                60$:    CLC                             ;CARRY CLEAR = ERROR
  1936  010730                        70$:
  1937  010730  010400                        MOV     R4,R0                   ;PASS PACKET ADDRESS
  1938  010732  000207                        RTS     PC                      ;RETURN
  1939                                ;
  1940                                ;
  1941                                ;
  1942                                ;PACKET FOR SPACE COMMAND
  1943                                ;
  1945          010740                        .=<.+10>&177770
  1947                                ;
  1948                                ;COMMAND WORD
  1949  010740  000000                80$:    .WORD
  1950                                ;NUMBER OF RECORDS TO BE SPACED OVER WORD
  1951  010742  000000                90$:    .WORD
  1952  010744  000000                        .WORD
  1953  010746  000000                        .WORD
  1954  010750  000000                SDELAY: .WORD   0                       ;DELAY COUNTER
  1955                                        .EVEN
  1956                                        .SBTTL  WRTCHR  - WRITE CHARACTERISTICS COMMAND
```

WRTCHR  - WRITE CHARACTERISTICS COMMAND

```
                                        ;+
                                        ;ROUTINE TO ISSUE A WRITE CHARACTERISTICS
                                        ;COMMAND SO THAT OTHER COMMANDS WILL BE ACCEPTED
                                        ;
                                        ;INPUT:
                                        ;       R4      ADDRESS OF PACKET FROM TEST
                                        ;       R5      FIRST DEVICE UNIBUS ADDRESS
                                        ;       REQUIRES A CALL TO SOFINIT BE DONE PREVIOUSLY
                                        ;
                                        ;OUTPUT:
                                        ;       R0      TSSR CONTENTS
                                        ;       CARRY   SET - WRITE CHARACTERISTICS COMMAND OK
                                        ;               CLR - WRITE CHARACTERISTICS FAILED
                                        ;
                                        ;IMPLICIT OUTPUT:
                                        ;
                                        ;       MESSAGE BUFFER AND OTHER BUFFERS ALL SET UP
                                        ;       SOFTWARE SWITCHES SET AS FOLLOWS:
                                        ;               EXTFEA = EXTENDED FEATURES PRESENT
                                        ;               BENBSW = BUFFER ENABLE SWITCH ON OR OFF
                                        ;
                                        ;SIDE EFFECTS:
                                        ;-
010752                                  WRTCHR::
010752                                          SAVREG                          ;SAVE THE GENERAL REGISTERS
010756  005037  002220                          CLR     BENBSW          ;CLEAR BUFFER ENABLE SWITCH
010762  005037  002216                          CLR     EXTFEA                  ;CLEAR EXTENDED FEATURES SW SWITCH
010766  010465  000000                  10$:    MOV     R4,TSDB(R5)             ;SEND OUT COMMAND
010772  004737  016426                          JSR     PC,CHKTSSR              ;WAIT FOR SSR
010776  103401                                  BCS     20$                     ;BR, IF SSR IS SET AND OK
011000  000435                                  BR      60$                     ;BR IF TROUBLE CARRY = CLEAR
011002  016501  000002                  20$:    MOV     TSSR(R5),R1             ;READ TSSR
011006  012702  000200                          MOV     #SSR,R2                 ;SET UP EXPECTED
011012  032701  000100                          BIT     #OFL,R1                 ;WAS OFF LINE SET IN TSSR
011016  001402                                  BEQ     25$                     ;BR, IF NO OFL SET
011020  052702  000100                          BIS     #OFL,R2                 ;MAKE THEM LOOK ALIKE
011024  020201                  25$:    CMP     R2,R1                   ;ARE THEY OK
011026  001401                                  BEQ     40$                     ;BR, IF EQUAL = OK
011030  000421                                  BR      60$                     ;TROUBLE EXIT
011032  062704  000010                  40$:    ADD     #8.,R4                  ;POINT TO WRT CHARA DATA PACKET
011036  011403                                  MOV     (R4),R3                 ;GET ADDRESS OF MESSAGE BUFFER
011040  032763  000200  000012                  BIT     #X2.EXTF,XST2(R3)       ;EXTENDED FEATURES BIT SET?
011046  001402                                  BEQ     45$                     ;BR IF NO
011050  005237  002216                          INC     EXTFEA                  ;SET EXTENDED FEATURES SW SWITCH
011054                          45$:
011054  032763  000100  000012                  BIT     #X2.BUFE,XST2(R3)       ;BUFFER ENABLE SWITCH SET
011062  001402                                  BEQ     50$                     ;BR, IF SWITCH NOT SET
011064  005237  0u2220                          INC     BENBSW                  ;SET SOFTWARE SWITCH FOR ENABLED
011070                          50$:
011070  000261                                  SEC                             ;SET CARRY NO TROUBLE
011072  000401                                  BR      70$                     ;EXIT
011074  000241                  60$:    CLC                             ;CARRY CLEAR = ERROR
011076  016500  000002                  70$:    MOV     TSSR(R5),R0             ;RETURN TSSR CONTENTS
011102  000207                                  RTS     PC                      ;RETURN
```

REWIND  - POSITION TAPE (REWIND) COMMAND

```
                                        .SBTTL  REWIND  - POSITION TAPE (REWIND) COMMAND
                                ;+
                                ;
                                ;THIS ROUTINE WILL REWIND THE SELECTED TAPE.
                                ;
                                ;       CAUTION: THE ROUTINE DOES NOT WAIT FOR BOT
                                ;                TO ARRIVE. ALSO THE CALLER MUST CHECK FOR
                                ;                SSR TO SET IN THE TSSR
                                ;
                                ;
                                ;CALLING SEQUENCE:
                                ;
                                ;       DO A SOFT INIT
                                ;       DO A WRITE CHARACTERISTICS
                                ;       JSR     PC,REWIND
                                ;
                                ;INPUT:
                                ;
                                ;       R5      FIRST DEVICE UNIBUS ADDRESS
                                ;
                                ;
                                ;OUTPUT
                                ;
                                ;       R0      THE CONTENTS OF R4 IS PASSED TO R0
                                ;
                                ;
                                ;-
                                REWIND::
                                        SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
                                        MOV     @RWPACK,R4              ;GET PACKET ADDRESS
                                        MOV     R4,TSDB(R5)             ;SEND PACKET ADDRESS TO EXECUTE
                                        MOV     #360.,R3                ;ENOUGH TIME FOR 2400' REEL TO REWIND
                                10$:    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
                                        BCS     20$                     ;LEAVE WHEN SSR IS SET
                                        DELAY   250.                    ;WAIT FOR .25 SECONDS
                                        MOV     #250.,(PC)+
                                        .WORD   0
                                        MOV     L$DLY,(PC)+
                                        .WORD   0
                                        DEC     -6(PC)
                                        BNE     .-4
                                        DEC     -22(PC)
                                        BNE     .-20
                                        DEC     R3                      ;BUMP COUNTER DOWN
                                        BNE     10$                     ;KEEP GOING
                                        CLC                             ;CLEAR CARRY TO SET ERROR
                                20$:    MOV     R4,R0                   ;PASS THE PACKET ADDRESS
                                        RTS     PC                      ;RETURN

                                        .=<.+10>&177770
                                RWPACK:
                                        .WORD   102010                  ;POSTION COMMAND (REWIND)
                                        .WORD   0                       ;NOT USED
```

```
                                .SBTTL  CKRAM   - COMPARE RAM TO I/O PACKET
                        ;+
                        ;
                        ;ROUTINE TO READ THE FIRST 8 BYTES FROM RAM
                        ;MEMORY AND COMPARE THIS DATA TO A COMMAND PACKET.
                        ;
                        ;INPUT:
                        ;
                        ;       R4      ADDRESS OF THE COMMAND PACKET
                        ;       R5      FIRST DEVICE UNIBUS ADDRESS
                        ;
                        ;OUTPUT:
                        ;
                        ;       CARRY   SET - RAM MATCHES PACKET
                        ;               CLR - RAM DOES NOT MATCH PACKET
                        ;
                        ;IMPLICIT OUTPUT:
                        ;
                        ;       THE TABLE RAMDATA IS FILLED WITH THE
                        ;       DATA HELD IN RAM.
                        ;       RAMSIZ IS SET TO 8. FOR PRAMPKT ROUTINE
                        ;
                        ;SIDE EFFECTS:
                        ;
                        ;       THE SUBSYSTEM IS LEFT IN MAINTENANCE MODE
                        ;
                        ;-

011204                  CKRAM::
011204                          SAVREG                          ;SAVE THE GENERAL REGISTERS
011210  012701  002232          MOV     #RAMDATA,R1             ;ADDRESS TO SAVE THE RAM DATA
011214  012702  000201          MOV     #RMPKTBEG,R2            ;BYTE ADDRESS OF FIRST RAM DATA
011220  005003                  CLR     R3                      ;CLEAR THE ERROR FLAG
011222  004737  016426          JSR     PC,CHKTSSR              ;WAIT FOR SSR
011226  112765  000000  000000  MOVB    #0,TSDB(R5)             ;SET MAINTENANCE MODE
011234  004737  016426  10$:    JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
011240  010265  000000          MOV     R2,TSDB(R5)             ;SELECT NEXT RAM ADDRESS
011244  004737  016426          JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
011250  116511  000000          MOVB    TSBA(R5),(R1)           ;READ THE RAM DATA
011254  122124                  CMPB    (R1)+,(R4)+             ;COMPARE TO EXPECTED
011256  001401                  BEQ     20$                     ;BRANCH IF OK
011260  005203                  INC     R3                      ;SET ERROR FLAG
011262  005202          20$:    INC     R2                      ;ADDRESS OF NEXT RAM LOCATION
011264  020227  000210          CMP     R2,#RMPKTEND            ;REACHED END YET ?
011270  003761                  BLE     10$                     ;BRANCH TILL ALL READ
011272  005703                  TST     R3                      ;WAS AN ERROR FOUND ?
011274  001402                  BEQ     30$                     ;BRANCH IF NOT
011276  000241                  CLC                             ;CLEAR CARRY TO SHOW ERROR
011300  000401                  BR      50$                     ;AND EXIT
011302  000261          30$:    SEC                             ;SHOW GOOD COMPARE
011304  012737  000010  002272  50$:    MOV     #8.,RAMSIZ      ;SETUP RAMSIZ FOR PRAMPKT ROUTINE
011312  000207                  RTS     PC                      ;RETURN
```

```
                                .SBTTL  CKRAM2  - COMPARE RAM TO I/O CHARACTERISTICS DATA
                        ;+
                        ;
                        ;ROUTINE TO READ THE FIRST 8 OR 10 BYTES FROM RAM
                        ;MEMORY AND COMPARE THIS DATA TO A CHARACTERISTICS DATA BLOCK.
                        ;
                        ;INPUT:
                        ;
                        ;       R4      ADDRESS OF THE CHARACTERISTICS DATA
                        ;       R5      FIRST DEVICE UNIBUS ADDRESS
                        ;
                        ;OUTPUT:
                        ;
                        ;       CARRY   SET - RAM MATCHES PACKET
                        ;               CLR - RAM DOES NOT MATCH PACKET
                        ;
                        ;IMPLICIT OUTPUT:
                        ;
                        ;       THE TABLE RAMDATA IS FILLED WITH THE
                        ;       DATA HELD IN RAM.
                        ;       RAMSIZ IS SET TO 8. OR 10. FOR PRAMPKT ROUTINE
                        ;
                        ;SIDE EFFECTS:
                        ;
                        ;       THE SUBSYSTEM IS LEFT IN MAINTENANCE MODE
                        ;-
011314                  CKRAM2::
011314                          SAVREG                          ;SAVE THE GENERAL REGISTERS
011320  012701  002232          MOV     #RAMDATA,R1             ;ADDRESS TO SAVE THE RAM DATA
011324  012702  000167          MOV     #RMCHBEG,R2             ;BYTE ADDRESS OF FIRST RAM DATA
011330  005003                  CLR     R3                      ;CLEAR THE ERROR FLAG
011332  004737  016426          JSR     PC,CHKTSSR              ;WAIT FOR SSR
011336  112765  000000  000000  MOVB    #0,TSDB(R5)             ;SET MAINTENANCE MODE
011344  004737  016426  10$:    JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
011350  010265  000000          MOV     R2,TSDB(R5)             ;SELECT NEXT RAM ADDRESS
011354  004737  016426          JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
011360  116511  000000          MOVB    TSBA(R5),(R1)           ;READ THE RAM DATA
011364  122124                  CMPB    (R1)+,(R4)+             ;COMPARE TO EXPECTED
011366  001401                  BEQ     20$                     ;BRANCH IF OK
011370  005203                  INC     R3                      ;SET ERROR FLAG
011372  005202          20$:    INC     R2                      ;ADDRESS OF NEXT RAM LOCATION
011374  012737  000010  002272  MOV     #8.,RAMSIZ              ;ASSUME EXTFEA NOT SET
011402  005737  002216          TST     EXTFEA                  ;IS THE SOFTWARE EXTENDED FEATURES SET
011406  001407                  BEQ     25$                     ;BR, IF NOT SET
011410  012737  000012  002272  MOV     #10.,RAMSIZ             ;SET RAMSIZ FOR EXTEND FEATURES
011416  020227  000200          CMP     R2,#RMCHEND             ;AT END OF EXTENDED BUFFER
011422  003750                  BLE     10$                     ;BR, IF NOT AT END YET
011424  000403                  BR      27$                     ;AT END BRANCH
011426  020227  000176  25$:    CMP     R2,#RMCHEND-2           ;REACHED END YET ?
011432  003744                  BLE     10$                     ;BRANCH TILL ALL READ
011434  005703          27$:    TST     R3                      ;WAS AN ERROR FOUND ?
011436  001402                  BEQ     30$                     ;BRANCH IF NOT
011440  000241                  CLC                             ;CLEAR CARRY TO SHOW ERROR
011442  000401                  BR      50$                     ;AND EXIT
011444  000261          30$:    SEC                             ;SHOW GOOD COMPARE
011446  000207          50$:    RTS     PC                      ;RETURN
```

```
                                        .SBTTL  CKMSG   - COMPARE WRITE CHAR. MESSAGE BUFFERS
                                ;*
                                ;
                                ;ROUTINE TO COMPARE A WRITE CHARACTERISTICS EXPD AND RECV
                                ;BUFFER. THE EXPECTED AND RECEIVED BUFFERS ARE STORED FOR
                                ;ERROR PRINT ROUTINES.
                                ;
                                ;INPUT:
                                ;
                                ;       R0      RECV MESSAGE BUFFER HIGH ORDER ADDRESS
                                ;       R1      RECV MESSAGE BUFFER LOW ORDER ADDRESS
                                ;       R2      EXPD MESSAGE BUFFER ADDRESS
                                ;OUTPUT:
                                ;
                                ;       CARRY   SET - MESSAGE BUFFERS MATCH
                                ;               CLR -MESSAGE BUFFERS DON'T MATCH
                                ;
                                ;IMPLICIT OUTPUT:
                                ;
                                ;       EXPMSG          BUFFER IS SET TO EXPD DATA
                                ;       RECMSG          BUFFER IS SET TO RECV DATA
                                ;       RCVHIADD        SET TO HIGH ORDER ADDRESS OF RECV
                                ;       RCVLOADD        SET TO LOW ORDER ADDRESS OF RECV
                                ;
                                ;-
011450                          CKMSG::
011450                                  SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
011454  010037  002274                  MOV     R0,RCVHIADD     ;SAVE RECV HIGH ADDRESS
011460  010137  002276                  MOV     R1,RCVLOAD      ;SAVE RECV LOW ADDRESS
011464  005737  003124                  TST     KTENABLE        ;TESTING ABOVE 28K?
011470  001403                          BEQ     10$             ;BR IF NO
011472  004737  017406                  JSR     PC,SETMAP       ;RETURN ADDRESS BIASED TO PAR6 IN R0
011476  010001                          MOV     R0,R1           ;GET RETURNED ADDRESS BIASED TO PAR6
011500  005004                  10$:    CLR     R4              ;WORD IN BUFFER
011502  005003                          CLR     R3              ;CLEAR ERROR SEEN FLAG
011504  010205                          MOV     R2,R5           ;GET EXPD BUFFER ADDRESS
011506  011264  002312          15$:    MOV     (R2),EXPMSG(R4) ;SAVE EXPD FOR ERROR REPORT
011512  011164  002456                  MOV     (R1),RECMSG(R4) ;SAVE RECV FOR ERROR REPORT
011516  022221                          CMP     (R2)+,(R1)+     ;EXPD EQUAL RECV?
011520  001401                          BEQ     25$             ;BR IF YES
011522  005203                          INC     R3              ;SET ERROR SEEN FLAG
011524  062704  000002          25$:    ADD     #2,R4           ;POINT TO NEXT WORD ADDRESS
011530  020427  000014                  CMP     R4,#14          ;DONE FIRST 7 WORDS?
011534  003764                          BLE     15$             ;BR IF NO
011536  032765  000200  000012          BIT     #X2.EXTF,XST2(R5);IS EXTENDED FEATURES SET IN EXPD?
011544  001403                          BEQ     50$             ;BR IF NO
011546  020427  000016                  CMP     R4,#16          ;DONE EXTENDED FEATURES WORD?
011552  003755                          BLE     15$             ;BR IF NO
011554  005703                  50$:    TST     R3              ;ANY ERRORS SEEN?
011556  001402                          BEQ     55$             ;BR IF NO
011560  000241                          CLC                     ;SET FAILURE
011562  000401                          BR      60$             ;
011564  000261                  55$:    SEC                     ;SET SUCCESS
011566  000207                  60$:    RTS     PC              ;RETURN
```

```
                                        .SBTTL  CKMSG2  - COMPARE EXPD RECV MESSAGE BUFFERS
                                ;+
                                ;ROUTINE TO COMPARE AN EXPECTED AND RECEIVED MESSAGE
                                ;BUFFER. THE EXPECTED AND RECEIVED BUFFERS ARE STORED FOR
                                ;ERROR PRINT ROUTINES.
                                ;
                                ;INPUT:
                                ;       R0      RECV MESSAGE BUFFER HIGH ORDER ADDRESS
                                ;       R1      RECV MESSAGE BUFFER LOW ORDER ADDRESS
                                ;       R2      EXPD MESSAGE BUFFER ADDRESS
                                ;       R3      NUMBER OF BYTES TO COMPARE
                                ;
                                ;OUTPUT:
                                ;       CARRY   SET - MESSAGE BUFFERS MATCH
                                ;               CLR - MESSAGE BUFFERS DON'T MATCH
                                ;
                                ;IMPLICIT OUTPUT:
                                ;       EXPMSG          BUFFER IS SET TO EXPD DATA
                                ;       RECMSG          BUFFER IS SET TO RECV DATA
                                ;       RCVHIADD        SET TO HIGH ORDER ADDRESS OF RECV
                                ;       RCVLOADD        SET TO LOW ORDER ADDRESS OF RECV
                                ;-
011570                          CKMSG2::
011570                                  SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
011574  020327  000144                  CMP     R3,@RECMSG-EXPMSG;@@D IS COUNT ABOVE MAX ALLOWED?
011600  003412                          BLE     5$                      ;@@D BR IF NO
011602  012703  000144                  MOV     @RECMSG-EXPMSG,R3;@@D
011606                                  PRINTF  @DEBUGMSG               ;@@D
011606  012746  011722                  MOV     @DEBUGMSG,-(SP)
011612  012746  000001                  MOV     @1,-(SP)
011616  010600                          MOV     SP,R0
011620  104417                          TRAP    C$PNTF
011622  062706  000004                  ADD     @4,SP
011626  010037  002274          5$:     MOV     R0,RCVHIADD             ;SAVE RECV HIGH ADDRESS
011632  010137  002276                  MOV     R1,RCVLOAD              ;SAVE RECV LOW ADDRESS
011636  005737  003124                  TST     KTENABLE                ;TESTING ABOVE 28K?
011642  001403                          BEQ     10$                     ;BR IF NO
011644  004737  017406                  JSR     PC,SETMAP               ;RETURN ADDRESS BIASED TO PAR6 IN R0
011650  010001                          MOV     R0,R1                   ;GET RETURNED ADDRESS BIASED TO PAR6
011652  005004          10$:    CLR     R4                              ;WORD IN BUFFER
011654  005005                  CLR     R5                              ;CLEAR ERROR SEEN FLAG
011656  111264  002312          15$:    MOVB    (R2),EXPMSG(R4)         ;SAVE EXPD FOR ERROR REPORT
011662  111164  002456                  MOVB    (R1),RECMSG(R4)         ;SAVE RECV FOR ERROR REPORT
011666  122221                          CMPB    (R2)+,(R1)+             ;EXPD EQUAL RECV?
011670  001401                          BEQ     25$                     ;BR IF YES
011672  005205                          INC     R5                      ;SET ERROR SEEN FLAG
011674  062704  000001          25$:    ADD     @1,R4                   ;POINT TO NEXT BYTE
011700  020403                          CMP     R4,R3                   ;DONE ALL BYTES?
011702  002001                          BGE     50$                     ;BR IF YES
011704  000764                          BR      15$                     ;DO NEXT BYTE
011706  005705          50$:    TST     R5                              ;ANY ERRORS SEEN?
011710  001402                          BEQ     55$                     ;BR IF NO
011712  000241                          CLC                             ;SET FAILURE
011714  000401                          BR      60$                     ;
011716  000261          55$:    SEC                                     ;SET SUCCESS
011720  000207          60$:    RTS     PC                              ;RETURN
```

```
2278 011722     120     122     117  DEBUGMSG: .ASCIZ 'PROGRAM INTERNAL ERROR -CKMSG2 MESSAGE BUFFER EXCEEDED-';@@D
2279 012012     045     116     045  FERCM:   .ASCII  /%N%A  ***/
2280 012023     040     040     124  ERCM:    .ASCIZ  /  TSSR ERROR CODE REC'D = /
2281 012056     056     056     056  SIMSG:   .ASCIZ  /.... AFTER DOING SOFT INIT/
2282 012111     124     105     123  TINERR: .ASCIZ  /TEST: .../
2283                                          .EVEN
2284                                 ;+
2285                                 ;
2286                                 ;PRINT ROUTINE TO FATAL SOFT INIT ERRORS
2287                                 ;
2288                                 ;INPUT:
2289                                 ;
2290                                 ;       R1      CONTENTS OF TSSR AT ERROR
2291                                 ;
2292                                 ;SIDE EFFECTS:
2293                                 ;
2294                                 ;       EXECUTES DROP UNIT TO CEASE TESTING
2295                                 ;
2296                                 ;-
2297
2298 012124                                  BGNMSG  SFIMSG
     012124                          SFIMSG::
2299 012124 004737  006022                  JSR     PC,PRITSSR      ;PRINT CONTENTS OF TSSR REGISTER
2300 012130 004737  017272                  JSR     PC,CKDROP       ;DROP UNIT, IF ALLOWED
2301 012134                                 ENDMSG
     012134                          L10003:
     012134 104423                          TRAP    C$MSG
2302
2303                                 ;+
2304                                 ;PRINT ROUTINE TO PRINT THE CONTENTS OF
2305                                 ;TSSR AND A COMMAND PACKET OTHER THAN GET STATUS COMMAND PACKET.
2306                                 ;
2307                                 ;INPUTS:
2308                                 ;
2309                                 ;       R1      TSSR CONTENTS
2310                                 ;       R4      ADDRESS OF COMMAND PACKET
2311                                 ;
2312                                 ;-
2313
2314 012136                                  BGNMSG  PKTSSR
     012136                          PKTSSR::
2315 012136 004737  006022                  JSR     PC,PRITSSR      ;PRINT THE CONTENTS OF TSSR REGISTER
2316 012142 012700  000004                  MOV     #4,R0           ;NO. OF WORDS IN PACKET
2317 012146 004737  007460                  JSR     PC,PRIPKT       ;PRINT THE CONTENTS OF COMMAND PACKET
2318 012152                                 ENDMSG
     012152                          L10004:
     012152 104423                          TRAP    C$MSG
```

```
                                        ;+
                                        ;PRINT ROUTINE TO PRINT THE CONTENTS OF
                                        ;TSSR AND A GET STATUS COMMAND PACKET.
                                        ;
                                        ;INPUTS:
                                        ;
                                        ;       R1      TSSR CONTENTS
                                        ;       R4      ADDRESS OF COMMAND PACKET
                                        ;-
                                                BGNMSG  PKTGETS
012154                                  PKTGETS::
012154  004737  006022                          JSR     PC,PRITSSR      ;PRINT THE CONTENTS OF TSSR REGISTER
012160  012700  000002                          MOV     #2,R0           ;NO. OF WORDS IN GET STATUS PACKET
012164  004737  007460                          JSR     PC,PRIPKT       ;PRINT THE CONTENTS OF COMMAND PACKET
012170                                          ENDMSG
012170                                  L10005:
012170  104423                                  TRAP    C$MSG
                                        ;+
                                        ;PRINT TSSR ERRORS FOR INITIALIZATION TESTS
                                        ;
                                        ;INPUTS:
                                        ;       R1      TSSR CONTENTS
                                        ;       R4      ADDRESS OF COMMAND PACKET
                                        ;-
                                                BGNMSG  SFFMSG
012172                                  SFFMSG::
012172  004737  006022                          JSR     PC,PRITSSR      ;PRINT CONTENTS OF TSSR REGISTER
012176                                          ENDMSG
012176                                  L10006:
012176  104423                                  TRAP    C$MSG
                                                .SBTTL  PKTMES  - PRINT TSSR AND MESSAGE BUFFER
                                        ;+
                                        ;PRINT ROUTINE TO PRINT THE CONTENTS OF TSSR AND MESSAGE
                                        ;BUFFER FOR ERROR REPORTS
                                        ;
                                        ;INPUTS:
                                        ;
                                        ;       R1      CONTENTS OF TSSR
                                        ;       R2      LOW ORDER MESSAGE BUFFER
                                        ;       R3      HIGH ORDER MESSAGE BUFFER ADDRESS
                                        ;       NOTE: R3 IS IGNORED IF KTENABLE FLAG IS CLEAR
                                        ;-
                                                BGNMSG  PKTMES
012200                                  PKTMES::
012200  004737  006022                          JSR     PC,PRITSSR              ;PRINT CONTENTS OF TSSR
012204  010200                                  MOV     R2,R0                   ;LOW ORDER ADDRESS
012206  010301                                  MOV     R3,R1                   ;HIGH ORDER ADDRESS
012210  004737  014332                          JSR     PC,PRMESS               ;PRINT THE MESSAGE BUFFER
012214                                          ENDMSG
012214                                  L10007:
012214  104423                                  TRAP    C$MSG
```

```
                                        .SBTTL  ADDSSR  - PRINT TEST ADDRESS AND TSSR
                                ;+
                                ;PRINT ROUTINE TO PRINT THE CONTENTS OF
                                ;TSSR AND A MEMORY TEST ADDRESS
                                ;
                                ;INPUTS:
                                ;
                                ;       R5      FIRST DEVICE UNIBUS ADDRESS
                                ;       ERRHI   HIGH ORDER MEMORY TEST ADDRESS
                                ;       ERRLO   LOW ORDER MEMORY TEST ADDRESS
                                ;-
                                        BGNMSG  ADDSSR
012216                          ADDSSR::
012216  004737  010364                  JSR     PC,PRITADD      ;PRINT MEMORY TEST ADDRESS
012222  016501  000002                  MOV     TSSR(R5),R1     ;GET CURRENT TSSR
012226  004737  006022                  JSR     PC,PRITSSR      ;PRINT THE CONTENTS OF TSSR REGISTER
012232                                  ENDMSG
012232                          L10010:
012232  104423                          TRAP    C$MSG

                                        .SBTTL  MSGEXP - PRINT WRITE CHAR. EXPD-RECV MESSAGE BUFFERS
                                ;+
                                ;
                                ;PRINT ROUTINE TO PRINT WRITE CHARACTERISTIC MESSAGE BUFFER
                                ;
                                ;IMPLICIT INPUTS:
                                ;
                                ;       EXPMSG  - EXPECTED MESSAGE BUFFER
                                ;       RECMSG  - RECEIVED MESSAGE BUFFER
                                ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
                                ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
                                ;-
                                        BGNMSG  MSGEXP
012234                          MSGEXP::
012234  012700  000007                  MOV     #7,R0           ;ASSUME NO EXT FEATURES
012240  005737  002216                  TST     EXTFEA          ;EXT FEATURES SET?
012244  001402                          BEQ     5$              ;BR IF NO
012246  012700  000010                  MOV     #8.,R0          ;EXT FEATURE BUFFER IS 8 WORDS
012252  004737  014642          5$:     JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
012256                                  ENDMSG
012256                          L10011:
012256  104423                          TRAP    C$MSG
```

```
                                        .SBTTL  FIFEXP  - PRINT FIFO EXP/RECV DATA
                                ;+
                                ;
                                ;PRINT ROUTINE TO PRINT FIFO EXP/RECV DATA
                                ;
                                ;       R1      - BYTE COUNT
                                ;
                                ;IMPLICIT INPUTS:
                                ;
                                ;       EXPMSG  - EXPECTED MESSAGE BUFFER (CONTAINS FIFO DATA ONLY
                                ;       RECMSG  - RECEIVED MESSAGE BUFFER (CONTAINS FIFO DATA ONLY)
                                ;-
                                        BGNMSG  FIFEXP
012260                          FIFEXP::
012260                                  PRINTX  #FIF1MSG,R1     ;PRINT BYTES TRANSFERRED
012260  010146                          MOV     R1,-(SP)
012262  012746  012332                  MOV     #FIF1MSG,-(SP)
012266  012746  000002                  MOV     #2,-(SP)
012272  C10600                          MOV     SP,R0
012274  104415                          TRAP    C$PNTX
012276  062706  000006                  ADD     #6,SP
012302                                  PRINTX  #FIF2MSG        ;PRINT HEADER MSG
012302  012746  012401                  MOV     #FIF2MSG,-(SP)
012306  012746  000001                  MOV     #1,-(SP)
012312  010600                          MOV     SP,R0
012314  104415                          TRAP    C$PNTX
012316  062706  000004                  ADD     #4,SP
012322  010100                          MOV     R1,R0           ;GET BYTE COUNT
012324  004737  015212                  JSR     PC,PRBYTEXP     ;PRINT FIFO BYTES IN ERROR
012330                                  ENDMSG
012330                          L10012:
012330  104423                  TRAP    C$MSG
012332    045     116    045  FIF1MSG:        .ASCIZ  '<N><A NUMBER OF BYTES TRANSFERRED = <D2>'
012401    045     116    045  FIF2MSG:        .ASCIZ  '<N><A FIFO DATA BYTES IN ERROR:'
                                        .EVEN
```

MSGSTAT - PRINT STATUS HEADER AND MESSAGE BUFFERS

```
                                        .SBTTL  MSGSTAT - PRINT STATUS HEADER AND MESSAGE BUFFERS
                                ;+
                                ;
                                ;PRINT ROUTINE TO PRINT MESSAGE BUFFER EXPD/RECV
                                ;
                                ;
                                ;IMPLICIT INPUTS:
                                ;
                                ;       EXPMSG  - EXPECTED MESSAGE BUFFER
                                ;       RECMSG  - RECEIVED MESSAGE BUFFER
                                ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
                                ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
                                ;-
012440                                  BGNMSG  MSGSTAT
012440                          MSGSTAT::
012440  012701  012502                  MOV     #STATCOD,R1     ;ASCII ADDRESS TABLE
012444  012100                  10$:    MOV     (R1)+,R0        ;DONE ALL MSG LINES?
012446  001410                          BEQ     20$             ;BR IF YES
012450                                  PRINTX  R0              ;PRINT STATUS BIT NAMES
012450  010046                          MOV     R0,-(SP)
012452  012746  000001                  MOV     #1,-(SP)
012456  010600                          MOV     SP,R0
012460  104415                          TRAP    C$PNTX
012462  062706  000004                  ADD     #4,SP
012466  000766                          BR      10$             ;DO ANOTHER MSG LINE
012470  012700  000012          20$:    MOV     #10.,R0         ;NUMBER OF WORDS IN A READ STATUS BUFFER
012474  004737  014642                  JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
012500                                  ENDMSG
012500                          L10013:
012500  104423                          TRAP    C$MSG
                                ;
012502  012520  012562  012653  STATCOD:        .WORD   1$,2$,3$,4$,5$,6$,0
012520    045     116     045   1$:.ASCIZ  '<N><A Tape Bus Signals in Word #8:'
012562    045     116     045   2$:.ASCIZ  '<N><A       PARERR<15>  IEOT  <12>  IFMK  <9>  IRDY<6>  IRWD<2>'
012653    045     116     045   3$:.ASCIZ  '<N><A       IRESV2<14>  IIDENT<11>  IHER  <8>  IONL<5>  IFBY<1>'
012744    045     116     045   4$:.ASCIZ  '<N><A       IRESV1<13>  ICER  <10>  ISPEED<7>  ILDP<4>  IFPT<0>'
013035    045     116     045   5$:.ASCIZ  '<N><A Tape Bus Signals in Word #9:'
013077    045     116     045   6$:.ASCIZ  '<N><A       DATMIS<7>  ILW<6>  OUTRDY<5>  INRDY<4>'
                                        .EVEN
```

MSGLOOP - PRINT LOOPBACK HEADER AND MESSAGE BUFFERS

```
                                        .SBTTL  MSGLOOP - PRINT LOOPBACK HEADER AND MESSAGE BUFFERS
                                ;+
                                ;
                                ;PRINT ROUTINE TO PRINT MESSAGE BUFFER EXPD/RECV
                                ;
                                ;IMPLICIT INPUTS:
                                ;
                                ;       EXPMSG  - EXPECTED MESSAGE BUFFER
                                ;       RECMSG  - RECEIVED MESSAGE BUFFER
                                ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
                                ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
                                ;-
013154                          BGNMSG  MSGLOOP
013154                  MSGLOOP::
013154  012701  013216          MOV     #LOOPCOD,R1     ;ASCII ADDRESS TABLE
013160  012100          10$:    MOV     (R1)+,R0        ;DONE ALL MSG LINES?
013162  001410                  BEQ     20$             ;BR IF YES
013164                          PRINTX  R0              ;PRINT STATUS BIT NAMES
013164  010046                  MOV     R0,-(SP)
013166  012746  000001          MOV     #1,-(SP)
013172  010600                  MOV     SP,R0
013174  104415                  TRAP    C$PNTX
013176  062706  000004          ADD     #4,SP
013202  000766                  BR      10$             ;DO ANOTHER MSG LINE
013204  012700  000012  20$:    MOV     #10.,R0         ;NUMBER OF WORDS IN A READ STATUS BUFFER
013210  004737  014642          JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
013214                          ENDMSG
013214                  L10014:
013214  104423                  TRAP    C$MSG

013216  013236  013311  013410  LOOPCOD:        .WORD   1$,2$,3$,4$,5$,6$,7$,0
013236    045     116     045   1$:.ASCIZ  '<N><A Tape Bus Loopback Signals in Word #8:'
013311    045     116     045   2$:.ASCIZ  '<N><A       PARERR<15>          IRESV2<14>          IRESV1<13>'
013410    045     116     045   3$:.ASCIZ  '<N><A IHISP=>IEOT<12>    IWRT=>IIDENT<11>    IREV  =>ICER  <10>'
013507    045     116     045   4$:.ASCIZ  '<N><A IWFM =>IFMK<09>    IEDIT=>IHER <08>    IFAD  =>ISPEED<07>'
013606    045     116     045   5$:.ASCIZ  '<N><A ITADO=>IRDY<06>    ITAD1=>IONL <05>    IERASE=>ILDP  <04>'
013705    045     116     045   6$:.ASCIZ  '<N><A IREW =>IDBY<03>    IRWU =>IRWD <02>    IFEN  =>IFBY  <01>'
014004    045     116     045   7$:.ASCIZ  '<N><A IGO  =>IFPT<00>'
                                        .EVEN
```

MSGSUB - PRINT WRITE SUBSYSTEM MESSAGE BUFFER

```
                                        .SBTTL  MSGSUB - PRINT WRITE SUBSYSTEM MESSAGE BUFFER
                                ;+
                                ;
                                ;PRINT ROUTINE TO PRINT MESSAGE BUFFER EXPD/RECV
                                ;
                                ;
                                ;IMPLICIT INPUTS:
                                ;
                                ;       EXPMSG  - EXPECTED MESSAGE BUFFER
                                ;       RECMSG  - RECEIVED MESSAGE BUFFER
                                ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
                                ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
                                ;-
014032                                  BGNMSG  MSGSUB
014032                          MSGSUB::
014032  012700  000012                    MOV     #10.,R0         ;SIZE OF WRITE SUBSYSTEM BUFFER
014036  004737  014642                    JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
014042                                  ENDMSG
014042                          L10015:
014042  104423                          TRAP    C$MSG

                                        .SBTTL  MEMADD - PRINT MEMORY ADDRESS DATA ERROR
                                ;+
                                ;
                                ;PRINT ROUTINE TO PRINT MEMORY ADDRESS DATA COMPARE ERROR
                                ;
                                ;IMPLICIT INPUTS:
                                ;
                                ;       ERRHI   - MEMORY ERROR HIGH ORDER ADDRESS
                                ;       ERRLO   - MEMORY ERROR LOW ORDER ADDRESS
                                ;       EXP     - EXPECTED DATA
                                ;       RECV    - RECEIVED DATA
                                ;-
014044                                  BGNMSG  MEMADD
014044                          MEMADD::
014044  004737  010250                  JSR     PC,PRIADD       ;PRINT MEMORY ADDRESS IN ERROR
014050  013701  002222                  MOV     EXPD,R1         ;GET EXPD DATA
014054  013702  002224                  MOV     RECV,R2         ;GET RECEIVED DATA
014060  004737  010032                  JSR     PC,PRIXOR       ;PRINT EXPD/RECV
014064                                  ENDMSG
014064                          L10016:
014064  104423                          TRAP    C$MSG
```

```
                                        .SBTTL  PRAMPKT - PRINT RAM AND PACKET DATA
                                ;+
                                ;PRINT ROUTINE TO DISPLAY RAM/PACKET DATA
                                ;WHEN THE RAM DATA DOES NOT MATCH.
                                ;
                                ;INPUTS:
                                ;
                                ;       R4      POINTER TO COMMAND PACKET
                                ;IMPLICIT INPUTS:
                                ;       RAMDATA         DATA AS READ FROM THE RAM
                                ;       RAMSIZ          NUMBER OF BYTES IN PACKET
                                ;                       IF RAMSIZ=0 THEN DEFAULT TO 8.
                                ;
                                ;IMPLICIT OUTPUTS:
                                ;       RAMSIZ  SET TO 0
                                ;-
014066                          PRAMPKT:
014066                                  SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
014072  C12701  002232                  MOV     #RAMDATA,R1             ;DATA FROM THE RAM
014076  005002                          CLR     R2                      ;INIT BYTE NUMBER
014100  122124                  5$:     CMPB    (R1)+,(R4)+             ;COMPARE EXPECTED, RECEIVED
014102  001005                          BNE     7$                      ;BR IF NO MATCH
014104                                  FORCERROR       7$,NOTSSR
014114  000436                          BR      10$                     ;BRD
014116  116105  177777          7$:     MOVB    -1(R1),R5               ;GET RECV RAM DATA
014122  116403  177777                  MOVB    -1(R4),R3               ;GET EXPD PACKET DATA
014126                                  XOR     R5,R3                   ;XOR EXPD/RECV
014136  042703  177400                  BIC     #177400,R3              ;LOW BYTE ONLY
014142  116137  177777  002224          MOVB    -1(R1),RECV             ;GET RECEIVED RAM DATA
014150  116437  177777  002222          MOVB    -1(R4),EXPD             ;GET EXPECTED RAM DATA
014156                                  PRINTB  #RAMASC,R2,RECV,EXPD,R3
014156  010346                          MOV     R3,-(SP)
014160  013746  002222                  MOV     EXPD,-(SP)
014164  013746  002224                  MOV     RECV,-(SP)
014170  010246                          MOV     R2,-(SP)
014172  012746  014246                  MOV     #RAMASC,-(SP)
014176  012746  000005                  MOV     #5,-(SP)
014202  010600                          MOV     SP,R0
014204  104414                          TRAP    C$PNTB
014206  062706  000014                  ADD     #14,SP
014212  005202                  10$:    INC     R2                      ;UPDATE BYTE COUNT
014214  005737  002272                  TST     RAMSIZ                  ;DEFAULT TO 8.?
014220  001404                          BEQ     15$                     ;BR IF YES
014222  020237  002272                  CMP     R2,RAMSIZ               ;DONE ALL BYTES?
014226  003724                          BLE     5$                      ;BR IF NO
014230  000403                          BR      25$                     ;
014232  020227  000010          15$:    CMP     R2,#8.                  ;DONE DEFAULT NUMBER OF BYTES?
014236  002720                  20$:    BLT     5$                      ;BR IF NO
014240  005037  002272          25$:    CLR     RAMSIZ                  ;SET DEFAULT RAMSIZ
014244  000207                          RTS     PC                      ;RETURN

014246  045 116 045 RAMASC:  .ASCIZ  '%N%A  BYTE: %D2%A RAM: %03%A Packet: %03%A XOR:%03'
                                .EVEN
```

PRMESS  - PRINT CONTENTS OF MESSAGE BUFFER

```
                                        .SBTTL  PRMESS  - PRINT CONTENTS OF MESSAGE BUFFER
                                ;+
                                ;THIS ROUTINE PRINTS THE CONTENTS OF
                                ;THE 7 OR 8 WORD MESSAGE BUFFER RETURNED BY THE TSV-05.
                                ;
                                ;INPUT:
                                ;       R0      LOW ORDER ADDRESS OF MESSAGE BUFFER
                                ;       R1      HIGH ORDER ADDRESS OF MESSAGE BUFFER
                                ;       NOTE: R1 IS IGNORED IF KTENABLE FLAG IS CLEAR
                                ;THIS ROUTINE IS NORMALLY CALLED FROM A PRINT ROUTINE
                                ;-
014332                          PRMESS: SAVREG                  ;SAVE THE REGISTERS
014336  010005                          MOV     R0,R5           ;SAVE LOW ORDER ADDRESS
014340  005737  003124                  TST     KTENABLE        ;ADDRESS ABOVE 28K?
014344  001001                          BNE     10$             ;BR IF YES
014346  005001                          CLR     R1              ;SET HIGH ORDER ADDRESS TO 0
014350  010103                  10$:    MOV     R1,R3           ;SAVE HIGH ORDER ADDRESS
014352  006100                          ROL     R0              ;SHIFT BIT15 TO C BIT
014354  006101                          ROL     R1              ;SHIFT TO HIGH ORDER FOR PRINTOUT
014356                                  PRINTX  #PROASC,R1,R5   ;PRINT MESSAGE BUFFER ADDRESS
014356  010546                          MOV     R5,-(SP)
014360  010146                          MOV     R1,-(SP)
014362  012746  014510                  MOV     #PROASC,-(SP)
014366  012746  000003                  MOV     #3,-(SP)
014372  010600                          MOV     SP,R0
014374  104415                          TRAP    C$PNTX
014376  062706  000010                  ADD     #10,SP
014402                                  PRINTX  #PR1ASC         ;PRINT HEADER FOR CONTENTS
014402  012746  014555                  MOV     #PR1ASC,-(SP)
014406  012746  000001                  MOV     #1,-(SP)
014412  010600                          MOV     SP,R0
014414  104415                          TRAP    C$PNTX
014416  062706  000004                  ADD     #4,SP
014422  005004                          CLR     R4              ;NUMBER OF THE NEXT WORD
014424  010501                          MOV     R5,R1           ;COPY LOW ORDER ADDRESS
014426  010300                          MOV     R3,R0           ;COPY HIGH ORDER ADDRESS
014430  001403                          BEQ     20$             ;BR IF NOT ABOVE 28K
014432  004737  017406                  JSR     PC,SETMAP       ;SETUP PAR ADDRESS IN R0
014436  010005                          MOV     R0,R5           ;GET PAR FORMAT ADDRESS ABOVE 28K
014440                          20$:    PRINTX  #PRASC,R4,(R5)+ ;PRINT THE CONTENTS OF MEMORY BUFFER
014440  012546                          MOV     (R5)+,-(SP)
014442  010446                          MOV     R4,-(SP)
014444  012746  014613                  MOV     #PRASC,-(SP)
014450  012746  000003                  MOV     #3,-(SP)
014454  010600                          MOV     SP,R0
014456  104415                          TRAP    C$PNTX
014460  062706  000010                  ADD     #10,SP
014464  005204                          INC     R4              ;NUMBER OF THE NEXT
014466  020427  000007                  CMP     R4,#7           ;DONE ALL YET ?
014472  003005                          BGT     50$             ;BRANCH IF ALL DONE
014474  002761                          BLT     20$             ;PRINT FIRST 7 WORDS
014476  032763  000200  000012          BIT     #X2.EXTF,XST2(R3);EXTENDED FEATUTES ON ?
014504  001355                          BNE     20$             ;PRINT EXTENDED STATUS WORD
014506  000207                  50$:    RTS     PC              ;RETURN
014510     045     116     045  PROASC: .ASCIZ  '%N%A Message Buffer Address = %O1%O5'
014555     045     116     045  PR1ASC: .ASCIZ  '%N%A Message Buffer Contents:'
014613     045     116     045  PRASC:  .ASCIZ  '%N%A    Word%D1%A: %O'
```

```
                                        .EVEN
                                        .SBTTL  PRMSGEXP - PRINT EXPD/RECV MESSAGE BUFFERS
                                ;+
                                ;ROUTINE TO PRINT EXPECTED AND RECEIVED MESSAGE BUFFERS
                                ;       R0      - NUMBER OF WORDS IN BUFFER
                                ;IMPLICIT INPUTS:
                                ;       EXPMSG  - EXPECTED MESSAGE BUFFER
                                ;       RECMSG  - RECEIVED MESSAGE BUFFER
                                ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
                                ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
                                ;-
014642                          PRMSGEXP::
014642                                  SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
014646  010005                          MOV     R0,R5                   ;SAVE NUMBER OF WORDS
014650  013700  002276                  MOV     RCVLOADD,R0             ;GET RECV LOW ADDRESS
014654  010004                          MOV     R0,R4                   ;COPY LOW ADDRESS
014656  013701  002274                  MOV     RCVHIADD,R1             ;GET RECV HIGH ADDRESS
014662  006100                          ROL     R0                      ;SHIFT BIT15 TO C BIT
014664  006101                          ROL     R1                      ;SHIFT TO HIGH ORDER FOR PRINTOUT
014666                                  PRINTX  #PRMSG0,R1,R4           ;PRINT MESSAGE BUFFER ADDRESS
014666  010446                          MOV     R4,-(SP)
014670  010146                          MOV     R1,-(SP)
014672  012746  015022                  MOV     #PRMSG0,-(SP)
014676  012746  000003                  MOV     #3,-(SP)
014702  010600                          MOV     SP,R0
014704  104415                          TRAP    C$PNTX
014706  062706  000010                  ADD     #10,SP
014712                                  PRINTX  #PRMSG1                 ;PRINT HEADER FOR CONTENTS
014712  012746  015067                  MOV     #PRMSG1,-(SP)
014716  012746  000001                  MOV     #1,-(SP)
014722  010600                          MOV     SP,R0
014724  104415                          TRAP    C$PNTX
014726  062706  000004                  ADD     #4,SP
014732  005004                          CLR     R4                      ;NUMBER OF THE CURRENT WORD
014734  012701  002312                  MOV     #EXPMSG,R1              ;GET EXPD BUFFER ADDRESS
014740  012702  002456                  MOV     #RECMSG,R2              ;GET RECV BUFFER ADDRESS
014744  011100                  20$:    MOV     (R1),R0                 ;GET EXPD
014746  011203                          MOV     (R2),R3                 ;GET RECV
014750                                  XOR     R0,R3                   ;XOR EXPD/RECV
014760                                  PRINTX  #PRMSG2,R4,(R1)+,(R2)+,R3
014760  010346                          MOV     R3,-(SP)
014762  012246                          MOV     (R2)+,-(SP)
014764  012146                          MOV     (R1)+,-(SP)
014766  010446                          MOV     R4,-(SP)
014770  012746  015125                  MOV     #PRMSG2,-(SP)
014774  012746  000005                  MOV     #5,-(SP)
015000  010600                          MOV     SP,R0
015002  104415                          TRAP    C$PNTX
015004  062706  000014                  ADD     #14,SP
015010  005204                          INC     R4                      ;NUMBER OF THE NEXT
015012  020405                          CMP     R4,R5                   ;DONE ALL YET?
015014  002001                          BGE     50$                     ;BR IF YES
015016  000752                          BR      20$                     ;DO ANOTHER
015020  000207                  50$:    RTS     PC                      ;RETURN
015022     045     116     045  PRMSG0: .ASCIZ   '%N%A Message Buffer Address = %01%05'
015067     045     116     045  PRMSG1: .ASCIZ   '%N%A Message Buffer Contents:'
015125     045     116     045  PRMSG2: .ASCIZ   '%N%A   WORD #%D2%A  EXPD: %06%A  RECV: %06%A  XOR: %06'
```

```
                                        .EVEN
                                        .SBTTL  PRBYTEXP - PRINT ERROR BYTES IN EXP/REC MESSAGE BUFFER
                                ;+
                                ;
                                ;ROUTINE TO PRINT ERROR BYTES IN MESSAGE BUFFERS
                                ;       ONLY THE FIRST 8 ERRORS ENCOUNTERED ARE PRINTED DUE TO SCREEN SPACE
                                ;
                                ;       R0      - NUMBER OF BYTES IN BUFFER
                                ;
                                ;IMPLICIT INPUTS:
                                ;
                                ;       EXPMSG  - EXPECTED MESSAGE BUFFER
                                ;       RECMSG  - RECEIVED MESSAGE BUFFER
                                ;-
015212                          PRBYTEXP::
015212                                  SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
015216  010005                          MOV     R0,R5                   ;SAVE NUMBER OF BYTES
015220  005037  002310                  CLR     PRMNO                   ;INIT ERROR COUNT
015224  C05004                          CLR     R4                      ;NUMBER OF THE CURRENT BYTE
015226  012701  002312                  MOV     @EXPMSG,R1              ;GET EXPD BUFFER ADDRESS
015232  012702  002456                  MOV     @RECMSG,R2              ;GET RECV BUFFER ADDRESS
015236  111100                20$:      MOVB    (R1),R0                 ;GET EXPD BYTE
015240  042700  177400                  BIC     #^C<377>,R0             ;CLEAR UPPER BYTE
015244  110037  015560                  MOVB    R0,PRBEXP               ;SAVE FOR ERROR REPORT
015250  111203                          MOVB    (R2),R3                 ;GET RECV BYTE
015252  042703  177400                  BIC     #^C<377>,R3             ;CLEAR UPPER BYTE
015256  110337  015562                  MOVB    R3,PRBREC               ;FOR ERROR REPORT
015262                                  XOR     R0,R3                   ;XOR EXPD/RECV
015272  122122                          CMPB    (R1)+,(R2)+             ;EXPD = RECV?
015274  001431                          BEQ     30$                     ;BR IF YES
015276  005237  002310                  INC     PRMNO                   ;UPDATE ERROR COUNT
015302  023727  002310  000010          CMP     PRMNO,#8.               ;PRINTED 8?
015310  101023                          BHI     30$                     ;BR IF YES
015312                          27$:    PRINTX  #PRBMSG,R4,PRBEXP,PRBREC,R3
015312  010346                          MOV     R3,-(SP)
015314  013746  015562                  MOV     PRBREC,-(SP)
015320  013746  015560                  MOV     PRBEXP,-(SP)
015324  010446                          MOV     R4,-(SP)
015326  012746  015426                  MOV     #PRBMSG,-(SP)
015332  012746  000005                  MOV     #5,-(SP)
015336  010600                          MOV     SP,R0
015340  104415                          TRAP    C$PNTX
015342  062706  000014                  ADD     #14,SP
015346                                  FORCEXIT        50$             ;@@D
015356  000404                          BR      35$                     ;@@D
015360                          30$:
015360                                  FORCERROR  27$,NOTSSR           ;@@D
015370                          35$:                                    ;@@D
015370  005204                          INC     R4                      ;NUMBER OF THE NEXT
015372  020405                          CMP     R4,R5                   ;DONE ALL YET?
015374  002001                          BGE     50$                     ;BR IF YES
015376  000717                          BR      20$                     ;DO ANOTHER
015400                          50$:    PRINTX  #PRBTOT,PRMNO           ;PRINT TOTAL ERROR COUNT
015400  013746  002310                  MOV     PRMNO,-(SP)
015404  012746  015513                  MOV     #PRBTOT,-(SP)
015410  012746  000002                  MOV     #2,-(SP)
015414  010600                          MOV     SP,R0
```

PRBYTEXP - PRINT ERROR BYTES IN EXP/REC MESSAGE BUFFER

```
                015416  104415                          TRAP    C$PNTX
                015420  062706  000006                  ADD     #6,SP
   2690         015424  000207                          RTS     PC                      ;RETURN
   2691
   2692         015426      045     116     045  PRBMSG: .ASCIZ  '#N#A   BYTE #%D2#A  EXPD: #03#A  RECV: #03#A  XOR: #03'
   2693         015513      045     116     045  PRBTOT: .ASCIZ  '#N#A NUMBER OF BYTES IN ERROR = #D2'
   2694                                              .EVEN
   2695         015560  000000                  PRBEXP: .WORD   0                       ;EXPD
   2696         015562  000000                  PRBREC: .WORD   0                       ;RECV
   2697                                              .SBTTL  EXPREC  - PRINT EXPD/RECV WORD DATA
   2698                                          ;+
   2699                                          ;
   2700                                          ;PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
   2701                                          ;
   2702                                          ;INPUTS:
   2703                                          ;
   2704                                          ;       R1      RECEIVED DATA
   2705                                          ;       R2      EXPECTED DATA
   2706                                          ;
   2707                                          ;-
   2708
   2709         015564                           EXPREC: BGNMSG  EXPREC
                015564                          EXPREC::
   2710         015564  004737  010032                  JSR     PC,PRIXOR               ;PRINT THE DATA
   2711         015570                                  ENDMSG
                015570                          L10017:
                015570  104423                          TRAP    C$MSG
   2712                                              .SBTTL  EXPBREC - PRINT EXPD/RECV BYTE DATA
   2713                                          ;+
   2714                                          ;
   2715                                          ;PRINT ROUTINE TO DISPLAY BYTE EXPD/RECV DATA
   2716                                          ;
   2717                                          ;
   2718                                          ;INPUTS:
   2719                                          ;
   2720                                          ;       R1      RECEIVED DATA BYTE
   2721                                          ;       R2      EXPECTED DATA BYTE
   2722                                          ;
   2723                                          ;-
   2724
   2725         015572                           EXPBREC: BGNMSG  EXPBREC
                015572                          EXPBREC::
   2726         015572  004737  007702                  JSR     PC,PRIBXOR              ;PRINT THE DATA
   2727         015576                                  ENDMSG
                015576                          L10020:
                015576  104423                          TRAP    C$MSG
   2728
   2729
   2730                                              .SBTTL  RAMERR  - PRINT RAM AND PACKET DATA
   2731                                          ;+
   2732                                          ;
   2733                                          ;PRINT ROUTINE TO DISPLAY RAM/PACKET DATA
   2734                                          ;
   2735                                          ;INPUTS:
   2736                                          ;
   2737                                          ;       R4      POINTER TO COMMAND PACKET
   2738                                          ;
```

RAMERR  - PRINT RAM AND PACKET DATA

```
                                        ;IMPLICIT INPUTS:
                                        ;
                                        ;       RAMDATA         DATA AS READ FROM THE RAM
                                        ;       RAMSIZ          NUMBER OF BYTES IN PACKET
                                        ;                       IF RAMSIZ=0 THEN DEFAULT TO 8.
                                        ;
                                        ;IMPLICIT OUTPUTS:
                                        ;
                                        ;       RAMSIZ  SET TO 0
                                        ;-
                                                BGNMSG  RAMERR
                                        RAMERR::
015600  004737  014066                          JSR     PC,PRAMPKT      ;PRINT RAM/PACKET DATA
                                                ENDMSG
                                        L10021:
015604  104423                                 TRAP    C$MSG
                                                .SBTTL  RAMTADD - PRINT TEST ADDRESS, RAM AND PACKET DATA
                                        ;+
                                        ;
                                        ;PRINT ROUTINE TO DISPLAY RAM/PACKET DATA
                                        ;
                                        ;INPUTS:
                                        ;
                                        ;       R4      POINTER TO COMMAND PACKET
                                        ;
                                        ;IMPLICIT INPUTS:
                                        ;
                                        ;       RAMDATA         DATA AS READ FROM THE RAM
                                        ;       RAMSIZ          NUMBER OF BYTES IN PACKET
                                        ;                       IF RAMSIZ=0 THEN DEFAULT TO 8.
                                        ;       ERRHI           HIGH ORDER TEST ADDRESS
                                        ;       ERRLO           LOW ORDER TEST ADDRESS
                                        ;
                                        ;IMPLICIT OUTPUTS:
                                        ;
                                        ;       RAMSIZ  SET TO 0
                                        ;-
                                                BGNMSG  RAMTADD
                                        RAMTADD::
015606  004737  010364                          JSR     PC,PRITADD      ;PRINT TEST ADDRESS
015612  004737  014066                          JSR     PC,PRAMPKT      ;PRINT RAM/PACKET DATA
                                                ENDMSG
                                        L10022:
015616  104423                                 TRAP    C$MSG
                                                .SBTTL  RAMEXP  - PRINT RAM EXPD/RECV DATA
                                        ;+
                                        ;
                                        ;PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
                                        ;
                                        ;INPUTS:
                                        ;
                                        ;       R1      RECEIVED DATA
                                        ;       R2      EXPECTED DATA
```

RAMEXP  - PRINT RAM EXPD/RECV DATA

```
                                        ;       R4      CONTROLLER RAM ADDRESS
                                        ;-
                                                BGNMSG  RAMEXP
                                        RAMEXP::
015620  042701  177400                          BIC     #^C<377>,R1             ;SAVE EXPD RAM DATA BYTE
015624  042702  177400                          BIC     #^C<377>,R2             ;SAVE EXPD RAM DATA BYTE
015630  004737  010156                          JSR     PC,PRIRAM               ;PRINT THE RAM ADDRESS
015634  004737  010032                          JSR     PC,PRIXOR               ;PRINT THE DATA
015640                                          ENDMSG
                                        L10023:
015640  104423                                  TRAP    C$MSG
                                                .SBTTL  TIMEXP  - PRINT TIMER A,B AND EXP/REC
                                        ;+
                                        ;
                                        ;PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
                                        ;AND TIMER A,B HEADER MESSAGE
                                        ;
                                        ;INPUTS:
                                        ;
                                        ;       R1      RECEIVED DATA
                                        ;       R2      EXPECTED DATA
                                        ;-
                                                BGNMSG  TIMEXP
                                        TIMEXP::
015642                                          PRINTX  #TIMSGO                 ;PRINT HEADER
015642  012746  015670                          MOV     #TIMSGO,-(SP)
015646  012746  000001                          MOV     #1,-(SP)
015652  010600                                  MOV     SP,R0
015654  104415                                  TRAP    C$PNTX
015656  062706  000004                          ADD     #4,SP
015662  004737  010032                          JSR     PC,PRIXOR               ;PRINT THE DATA
015666                                          ENDMSG
                                        L10024:
015666  104423                                  TRAP    C$MSG

015670      045     116     045 TIMSGO: .ASCIZ  '<N><A TIMER A STATUS IS IN BIT 3<N><A TIMER B STATUS IS IN BIT 2'
                                    .EVEN
                                                .SBTTL  BADSSR - PRINT TSSR ERRORS ON DATA TRANSFERS

                                        ;+
                                        ;
                                        ;PRINT ROUTINE FOR TSSR ERRORS ON DATA TRANSFERS
                                        ;
                                        ;INPUTS:
                                        ;
                                        ;       R1      CONTENTS OF TSSR
                                        ;       R2      DATA WRITTEN (8 BITS)
                                        ;
                                        ;-

                                                BGNMSG  BADSSR
                                        BADSSR::
015770                                          MOV     R2,-(SP)                ;SAVE DATA TRANSFERRED
015772  042702  177400                          BIC     #177400,R2              ;GET JUST ONE BYTE
```

BADSSR - PRINT TSSR ERRORS ON DATA TRANSFERS

```
2835 015776                                PRINTB  #XFERASC,R2
     015776  010246                        MOV     R2,-(SP)
     016000  012746  016030                MOV     #XFERASC,-(SP)
     016004  012746  000002                MOV     #2,-(SP)
     016010  010600                        MOV     SP,R0
     016012  104414                        TRAP    C$PNTB
     016014  062706  000006                ADD     #6,SP
2836 016020  012602                        MOV     (SP)+,R2                ;RESTORE R2
2837 016022  004737  006022                JSR     PC,PRITSSR              ;DECODE TSSR CONTENTS
2838 016026                                ENDMSG
     016026                          L10025:
     016026  104423                        TRAP    C$MSG
2839 016030     045     116     045  XFERASC:        .ASCIZ  '<N><A Data Transferred = <03>'
```

GLOBAL SUBROUTINES SECTION

```
                                .SBTTL  GLOBAL SUBROUTINES SECTION

                                ;++
                                ; THE GLOBAL SUBROUTINES SECTION CONTAINS THE SUBROUTINES
                                ; THAT ARE USED IN MORE THAN ONE TEST.
                                ;--
                                        .SBTTL  SOFINIT - SOFT INITIALIZE OF CONTROLLER

                                ;+
                                ;
                                ;ROUTINE TO DO A SOFT INITIALIZE OF THE CONTROLLER
                                ;BY WRITING INTO THE TSSR REGISTER. AFTER THE INIT,
                                ;THE TSSR REGISTER IS TESTED FOR ERRORS. ANY ERRORS
                                ;DETECTED SHOULD BE TREATED AS DEVICE FATAL ERRORS.
                                ;
                                ;INPUTS:
                                ;
                                ;       R5      ADDRESS OF FIRST REGISTER
                                ;
                                ;OUTPUTS:
                                ;
                                ;       R0      CONTENTS OF TSSR, IF ERROR
                                ;       CARRY   SET IF INIT WAS OKAY
                                ;               CLEAR IF FATAL ERROR
                                ;
                                ;CALLING SEQUENCE:
                                ;
                                ;       MOV     #ADDRESS,R5
                                ;       JSR     PC,SOFINIT
                                ;       BCS     CONTINUE
                                ;       ERRDF                   ;REPORT FATAL ERROR
                                ;
                                ;-

016064                          SOFINIT::
016064                                  SAVREG                  ; SAVE THE REGISTERS
016070  012765  000000  000002          MOV     #0,TSSR(R5)     ; DO THE INIT.
016076  004737  016340                  JSR     PC,WAITF        ; WAIT FOR SSR
016102  016500  000002                  MOV     TSSR(R5),R0     ;GET THE TSSR REGISTER
016106  010004                          MOV     R0,R4           ;TSSR CONTENTS
016110  042704  176277                  BIC     #^C<HIADDR!OFL>,R4
016114  052704  002200                  BIS     #SSR!NBA,R4     ;R4 HAS EXPECTED CONTENTS
016120  020400                          CMP     R4,R0           ;ONLY EXPECTED BITS SET ?
016122  001402                          BEQ     5$              ;BRANCH IF OKAY
016124  000241                          CLC                     ;CLEAR THE CARRY FOR ERROR
016126  000401                          BR      10$             ;GO TO EXIT
016130  000261                  5$:     SEC                     ;SET THE CARRY BIT
016132  000207                  10$:    RTS     PC              ;RETURN TO CALLER
```

CHKAMB  - CHECK TSSR FOR AMBIGUITY

```
                                .SBTTL  CHKAMB  - CHECK TSSR FOR AMBIGUITY

                                ;+
                                ;
                                ;THIS ROUTINE TESTS THE CONTENTS OF THE TSSR REGISTER
                                ;FOR AMBIGUITY
                                ;
                                ;INPUT:
                                ;
                                ;       R0      CONTENTS OF TSSR
                                ;
                                ;OUTPUT:
                                ;
                                ;       R0      CONTENTS OF TSSR
                                ;
                                ;       CARRY   SET - NO AMBIGUITY
                                ;               CLR - AMBIGUOUS CONTENTS
                                ;
                                ;-

016134                          CHKAMB:
016134                                  SAVREG                          ;SAVE THE GENERAL REGISTERS
016140  010004                          MOV     R0,R4                   ;CONTENTS OF TSSR
016142  032700  100000                  BIT     #SC,R0                  ;IS BIT 15 SET ?
016146  001004                          BNE     5$                      ;BRANCH IF YES
016150  032700  174077                  BIT     #^C<NBA!OFL!SSR!HIADDR>,R0      ;ANY OTHER BITS SET ?
016154  001023                          BNE     40$                     ;MUST BE AN ERROR
016156  000424                          BR      45$                     ;RETURN WITH SUCCESS
016160  032700  000200          5$:     BIT     #SSR,R0                 ;IS READY BIT SET ?
016164  001011                          BNE     10$                     ;BRANCH IF READY BIT IS SET.
016166  032700  000040                  BIT     #BIT5,R0                ;IS FATAL ERROR BIT SET ?
016172  001414                          BEQ     40$                     ;ERROR IF NOT
016174  042704  177761                  BIC     #^CTERCLS,R4            ;CLEAR ALL BUT TERMINATION CODE
016200  020427  000016                  CMP     R4,#16                  ;ALL THREE BITS MUST BE SET
016204  001007                          BNE     40$                     ;ERROR IF NOT SET
016206  000410                          BR      45$                     ;OK IF ALL ARE SET
016210  032700  000040          10$:    BIT     #BIT5,R0                ;IS FATAL ERROR BIT SET ?
016214  001405                          BEQ     45$                     ;ERROR IF BIT IS SET WITH SSR
016216  032700  000006                  BIT     #BIT2!BIT1,R0           ;IS THIS A FUNCTION REJECT
016222  001002                          BNE     45$                     ;BR, IF TSSR IS OK
016224  000241          40$:    CLC                                     ;AMBIGUOUS CONTENTS
016226  000401                  BR      50$
016230  000261          45$:    SEC                                     ;SHOW SUCCESS - NO AMBIGUITY
016232  000207          50$:    RTS     PC                              ;RETURN TO CALLER
```

ENAINT,DSBINT - ENABLE/DISABLE INTERRUPTS

```
                                        .SBTTL  ENAINT,DSBINT - ENABLE/DISABLE INTERRUPTS
                                        ;
                                        ; DEFAULT DISPLAY INTERRUPT HANDLERS.
                                        ; IF DISPLAY TIME-OUT, REPORT DEV FATAL, AND ABORT PASS.
                                        ; OTHERWISE, SAVE DPU REGISTERS AND DISMISS.
                                        ;

                                        ; BIT DEFINITIONS FOR "INTMASK" AND "INTFLAG" BYTES:
                                        ;
                000200                          IOKCKIN=BIT7    ; DON'T CHECK FOR BAD INTERRUPTS -- TEST WILL.
                000001                          IOKSTP=BIT0     ; EXPECT "STOP" INTERRUPT.
                                        ;
                                        ;INTERRUPT MASK -- SAYS EXPECTING INTERRUPTS
016234     000                          INTMASK:        .BYTE   0
                                        ;INTERRUPT FLAG -- SAYS WE GOT ONE (IF POSITIVE)
016235     000                          INTFLAG:        .BYTE   0

                                        ;SAVED INTERRUPT VECTOR:
016236  C00000                          INTVEC: .WORD   0
                                        ;SAVE CPU PC
016240  000000                          INTCPC: .WORD   0

                                        ;SUBROUTINE TO ENABLE INTERRUPTS:
016242  010046                          ENAINT: MOV     R0,-(SP)        ;SAVE R0
016244  013700  002200                          MOV     IVEC,R0         ;GET POINTER TO VECTORS
016250  012720  016306                          MOV     #INTR,(R0)+     ;SET UP INTERRUPT VECTOR
016254  012720  000340                          MOV     #PRI07,(R0)+
016260  012600                                  MOV     (SP)+,R0        ;RESTORE R0
016262  011646                                  MOV     (SP),-(SP)
016264  012766  000000  000002                  MOV     #0,2(SP)        ;SET CPU TO LEVEL 0
016272  000002                                  RTI

                                        ;SUBROUTINE TO DISABLE INTERRUPTS (RAISE PRIORITY TO LEVEL 7)
016274  011646                          DSBINT: MOV     (SP),-(SP)
016276  012766  000340  000002                  MOV     #PRI07,2(SP)
016304  000002                                  RTI
                                                .SBTTL  INTR    - INTERRUPT HANDLERS

016306                                          BGNSRV  INTR            ;DEFINE INTERRUPT ENTRY
016306                                  INTR::
016306  012737  000001  002214                  MOV     #1,INTRECV      ;SET FLAG TO SHOW INTERRUPT RECEIVED
016314  105037  016235                          CLRB    INTFLAG         ;CLEAR FLAG TO SAY WE GOT INTERRUPT
016320  132737  000001  016234                  BITB    #IOKSTP,INTMASK ;EXPECTING STOP INTERRUPT?
016326  001003                                  BNE     1$              ;BR IF YES
016330  152737  000001  016235                  BISB    #IOKSTP,INTFLAG ;NO. SET THE ERROR FLAG.

                                        ;SAVE REGISTERS, MSG BUFFER, ETC.
016336                                  1$:
016336                                          ENDSRV
016336                                  L10026:
016336  000002                                  RTI
```

WAITF  - WAIT FOR SUBSYSTEM READY

```
                                        .SBTTL  WAITF   - WAIT FOR SUBSYSTEM READY
                                ;
                                ; SUBROUTINE TO WAIT FOR THE SUBSYSTEM READY FLAG
                                ;
                                ;INPUTS:
                                ;
                                ;       R5      ADDRESS OF FIRST DEVICE REGISTER
                                ;
                                ;OUTPUTS:
                                ;
                                ;       R0      CONTENTS OF LAST TSSR READ
                                ;       CARRY   SET - READY BIT SET
                                ;               CLR - TIMEOUT WAITING FOR READY
                                ;
016340  000401          WAITF:: BR      1$              ;NOP WHEN SUPER FIXED
016342                          BREAK                   ; DO A SUPVSR BREAK FIRST.
016342  104422                  TRAP    C$BRK
016344  012746  011000  1$:     MOV     #11000,-(SP)    ;25-APRIL-83 REV B  - 1100 MSEC TIMER
016350  C16500  000002  2$:     MOV     TSSR(R5),R0     ;READ THE TSSR REGISTER
016354  105700                  TSTB    R0              ;TEST FOR READY BIT SET
                        
016356  100420                  BMI     3$              ; EXIT ON STOP FLAG.
016360                          DELAY   1               ; WAIT 100 USEC
016360  012727  000001          MOV     #1,(PC)+
016364  000000                  .WORD   0
016366  013727  002116          MOV     L$DLY,(PC)+
016372  000000                  .WORD   0
016374  005367  177772          DEC     -6(PC)
016400  001375                  BNE     .-4
016402  005367  177756          DEC     -22(PC)
016406  001367                  BNE     .-20
016410  005316                  DEC     (SP)            ;REDUCE DELAY COUNT
016412  001356                  BNE     2$              ;RETRY UNTIL TIMER EXPIRES
016414  000241                  CLC                     ; C = 0, CONTROLLER STILL RUNNING...
016416  000401                  BR      4$              ;...OR HUNG-UP AFTER 300 MSEC.
016420  000261          3$:     SEC                     ; C = 1, CONTROLLER IS STOPPED.
016422  005326          4$:     DEC     (SP)+           ;RESTORE STACK WITHOUT CHANGING CARRY BIT
016424  000207                  RTS     PC
```

CHKTSSR - CHECK TSSR FOR READY

```
                                .SBTTL  CHKTSSR - CHECK TSSR FOR READY
                                ;+
                                ;THIS ROUTINE WAITS FOR READY IN THE TSSR
                                ;AND TESTS FOR AMBIGUOUS BIT SETTINGS IN TSSR.
                                ;
                                ;INPUT:
                                ;       R5      ADDRESS OF CSR REGISTERS
                                ;
                                ;OUTPUT:
                                ;       R0      CONTENTS OF TSSR
                                ;       CARRY   SET - OKAY
                                ;               CLR - NOT READY AMBIGUOUS, OR SC SET
                                ;-
016426                          CHKTSSR:
016426  004737  016340                  JSR     PC,WAITF                ;WAIT FOR READY
016432  103014                          BCC     20$                     ;BRANCH IF TIME OUT
016434  004737  016134                  JSR     PC,CHKAMB               ;TSSR AMBIGOUS?
016440  103006                          BCC     10$                     ;BR IF YES
016442  C32700  100000                  BIT     #SC,R0                  ;SPECIAL CONDITION SET?
016446  001405                          BEQ     15$                     ;BR IF NO
016450  032700  074000                  BIT     #<SCE!BIE!RMR!NXM>,R0   ;ANY ERROR BITS SET?
016454  001402                          BEQ     15$                     ;BR IF NO
016456  000241                  10$:    CLC                             ;SET FAILURE
016460  000401                          BR      20$                     ;
016462  000261                  15$:    SEC                             ;SET SUCCESS
016464  000207                  20$:    RTS     PC                      ;RETURN TO CALLER
                                        .SBTTL  XNXM    - CHECK FOR NONEXISTENT MEMORY
                                ;+
                                ; ROUTINE TO TEST FOR A NEXM IN THE RANGE (R1) THRU (R2).
                                ; ON RETURN, IF "C" = 1, (R1) = NEXM ADDRESS.
                                ;               "C" = 0, ALL ADDRESSES OK.
                                ;
                                ;CALL:  MOV ADR1,R1
                                ;       MOV ADR2,R2
                                ;       JSR PC,NXM
                                ;       RETURN                  ;TEST "C" AND PROCEED.
016466  012737  016520  000004  XNXM:   MOV     #2$,@#4                 ; SET BUSERR VECTOR.
016474  012737  000200  000006          MOV     #PRI04,@#6
016502  005003                          CLR     R3                      ;FLAG.
016504  005711                  1$:     TST     (R1)                    ;TEST THE ADDRESS(ES).
                                                                        ;IF ANY TRAP, CONTINUE AT 2$.
016506  020102                          CMP     R1,R2                   ;OTHERWISE, CONTINUE HERE.
016510  001407                          BEQ     3$                      ;BR IF FINISHED (NO NEXM'S).
016512  062701  000002                  ADD     #2,R1                   ;SET NEXT ADDRESS...
016516  000772                          BR      1$                      ;...AND CONTINUE.
016520  005103                  2$:     COM     R3                      ;GOT ONE, SET FLAG...
016522  012716  016530                  MOV     #3$,(SP)
016526  000002                          RTI                             ;...AND DISMISS INTERRUPT...
016530                          3$:     CLRVEC  #4                      ;...AND GIVE BACK THE VECTOR.
016530  012700  000004                  MOV     #4,R0
016534  104436                          TRAP    C$CVEC
016536  005703                          TST     R3                      ;DID WE CATCH ONE ??
016540  001401                          BEQ     .+4                     ;NO, "C" = 0, SKIP NEXT.
016542  000261                          SEC                             ;YES, "C" = 1, (R1) = NEXM ADDR.
016544  000207                          RTS     PC
```

TSTLOOP - CHECK ITERATION COUNT

```
                                        .SBTTL  TSTLOOP - CHECK ITERATION COUNT
                                ;+
                                ; SUBROUTINE TO EXECUTE TEST ITERATIONS.
                                ; EXIT WITH "C" SET IF LOOPS ALLOWED AND LOOP COUNT NON-ZERO.
                                ; LOOP COUNTER IS SET BY "BEGIN.TEST" MACRO.
                                ;
                                ; CALL: LOOPTO  ARG
                                ;
016546                          TSTLOOP::
016546  005737  002160                  TST     NOITS           ; ITERATIONS INHIBITED?
016552  001006                          BNE     1$              ; YES.
016554  005737  002174                  TST     QVP             ; NO.
016560  100403                          BMI     1$              ;LOOPS DISALLOWED IN QUICK PASS.
016562  005337  002206                  DEC     LOOPCNT         ; BUMP LOOP COUNTER.
016566  001002                          BNE     2$
016570  000241                  1$:     CLC                     ;LOOP DISALLOWED, OR DONE.
016572  000401                          BR      3$
016574  000261                  2$:     SEC                     ;LOOP ENABLED.
016576  000207                  3$:     RTS     PC

                                        .SBTTL  TSTSETUP - PRINT TEST NAME AND INIT ERROR COUNTS
                                ;+
                                ; PRINT THE NUMBER AND NAME OF EACH TEST AS WE GO ALONG.
                                ; INCREMENT "TESTK" TO INDICATE THE NUMBER OF TESTS
                                ; IN THE CURRENT RUN SEQUENCE.
                                ; CLEAR THE ERROR COUNTER AND SIGNATURE EXTENSION FLAGS.
                                ;
                                ;INPUT:
                                ;
                                ;       R0      POINTER TO TEST ID ASCIZ STRING
                                ;
                                ;OUTPUT:
                                ;
                                ;       R5      ADDRESS OF FIRST DEVICE REGISTER
                                ;
                                ;IMPLICIT OUTPUTS:
                                ;
                                ;       TSTCNT  UPDATED TO COUNT TESTS PERFORMED SINCE START OR RESTART
                                ;
                                ;SIDE EFFECTS:
                                ;
                                ;       INTERRUPT LEVEL IS RASIED TO LEVEL OF
                                ;       THE DEVICE UNDER TEST
                                ;
                                ;-

016600                          TSTSETUP::
016600  010046                          MOV     R0,-(SP)        ;SAVE THE TEST ID MESSAGE
016602  005037  003144                  CLR     SIFLAG          ; CLEAR "SOFT INIT" FLAG
016606  005037  017046                  CLR     ERRK            ; CLEAR LOCAL ERROR COUNTER.
016612  005037  005770                  CLR     EXTA            ; CLEAR ERROR EXTENSION FLAG.
016616  105037  016234                  CLRB    INTMASK         ; CLEAR INTERRUPT MASK (CHECK ERROR)
016622  013700  002172                  MOV     UNITN,R0        ; GET THE UNIT NUMBER,
016626  006300                          ASL     R0              ; ... AND MAKE IT A WORD OFFSET.
016630  005737  003104                  TST     NODEV           ; DID STARTUP FIND THE DEVICE?
016634  001430                          BEQ     4$              ; BR IF YES
016636  100010                          BPL     3$              ; BR IF NOT IDLE
```

TSTSETUP - PRINT TEST NAME AND INIT ERROR COUNTS

```
                                                BIS     #160000,ERTABL(R0) ; FLAG ERROR IN THE ERROR TABLE
                                                ERRDF   1,NXR,NXRERR    ; NO DEVICE HERE -- PRINT IT
                                                TRAP    C$ERDF
                                                .WORD   1
                                                .WORD   NXR
                                                .WORD   NXRERR
                                                BR      2$
                                        3$:     BIS     #160001,ERTABL(R0)      ; FLAG ERROR IN THE ERROR TABLE
                                                ERRDF   2,NOINIT        ; DEVICE NOT IDLE
                                                TRAP    C$ERDF
                                                .WORD   2
                                                .WORD   NOINIT
                                                .WORD   0
                                        2$:     MOV     #-1,DUFLG       ; DROP THE UNIT
                                                DODU    UNITN
                                                MOV     UNITN,R0
                                                TRAP    C$DODU
                                                DOCLN                   ; ABORT THE PASS
                                                TRAP    C$DCLN
                                                BR      5$

                                        4$:     RFLAGS  R0              ; GET THE OPERATOR FLAGS.
                                                TRAP    C$RFLA
                                                BIT     #PNT,R0         ; PRINT THE TEST NUMBERS?
                                                BEQ     1$              ; BR IF NO
                                                MOV     (SP),R0         ;GET THE ID MESSAGE
                                                PRINTF  #TNAM,R0                ;DISPLAY THE TEST ID
                                                MOV     R0,-(SP)
                                                MOV     #TNAM,-(SP)
                                                MOV     #2,-(SP)
                                                MOV     SP,R0
                                                TRAP    C$PNTF
                                                ADD     #6,SP
                                        1$:     INC     TSTCNT          ; BUMP TEST COUNTER.
                                                SETPRI  IPRI            ;PRIORITY THAT OF DEVICE
                                                MOV     IPRI,R0
                                                TRAP    C$SPRI
                                        5$:     TST     (SP)+           ;FIX UP THE STACK
                                                MOV     CSRADDR,R5      ; ADDRESS OF TSV REGISTERS ON UNIBUS
                                                RTS     PC
                                        045 TNAM:   .ASCIZ  '#S#T#A Test'
                                                .EVEN
                                                .SBTTL  TSTEND  - PRINT ERRORS RECEIVED
                                        ;
                                        ; AT END OF EACH TEST, PRINT THE NUMBER OF ERRORS RECEIVED
                                        ; IF NORMAL ERROR REPORTING IS DISABLED (FLA:IER).
                                        ;
                                        TSTEND: RFLAGS  R0
                                                TRAP    C$RFLA
                                                BIT     R0,#IER
                                                BEQ     1$              ; BR IF "IER" NOT SET.
                                                PRINTF  #ESUM,ERRK      ; PRINT ERROR COUNT.
                                                MOV     ERRK,-(SP)
                                                MOV     #ESUM,-(SP)
                                                MOV     #2,-(SP)
                                                MOV     SP,R0
                                                TRAP    C$PNTF
```

TSTEND  - PRINT ERRORS RECEIVED

```
        017040  062706  000006                  ADD     #6,SP
   3156 017044  000207                  1$:     RTS     PC
   3157
   3158 017046  000000                  ERRK:   0                       ; LOCAL ERROR COUNT.
   3159 017050     045     101     040  ESUM:   .ASCIZ  /%A %D%A ERRORS/
   3160 017067     105     122     122  EMAXDU: .ASCIZ  /ERROR LIMIT REACHED -- DROPPING UNIT/
   3161                                         .EVEN
```

```
                                        .SBTTL  INCERK  - INCREMENT LOCAL ERROR COUNT
                                ;+
                                ; ROUTINES TO INCREMENT LOCAL ERROR COUNT AND CHECK FOR LIMIT:
                                ;-
017134  005237  017046        INCERK: INC     ERRK            ; INCREMENT LOCAL ERROR COUNT
017140  010046                        MOV     R0,-(SP)        ; SAVE R0
017142  013700  002172                MOV     UNITN,R0        ; GET UNIT NUMBER.
017146  006300                        ASL     R0              ; ... AND MAKE IT A WORD OFFSET.
017150  062700  003166                ADD     #ERTABL,R0      ; R0 GETS ADDRESS OF ERROR TABLE ENTRY.
017154  005210                        INC     (R0)            ; INCREMENT THE DEVICE ERROR COUNT
017156  032710  007777                BIT     #7777,(R0)      ; DID WE OVERFLOW THE FIELD?
017162  001001                        BNE     1$              ; BR IF NO.
017164  005310                        DEC     (R0)            ; YES -- BACK IT UP TO 7777.
017166  012600                1$:     MOV     (SP)+,R0        ; RESTORE R0
017170  000207                        RTS     PC              ; RETURN TO CALLER

017172  010046                CKEMAX: MOV     R0,-(SP)        ; SAVE R0
017174  013700  002172                MOV     UNITN,R0        ; GET UNIT NUMBER
017200  006300                        ASL     R0              ; ... AND MAKE IT A WORD OFFSET
017202  016000  003166                MOV     ERTABL(R0),R0   ; GET ERROR TABLE ENTRY
017206  042700  170000                BIC     #170000,R0      ; EXTRACT ERROR COUNT FIELD
017212  020037  002164                CMP     R0,GERRMAX      ; IS GLOBAL LIMIT EXCEEDED FOR THIS UNIT?
017216  103004                        BHIS    1$              ; BR IF YES
017220  023737  017046  002162        CMP     ERRK,LERRMAX    ; IS LOCAL LIMIT EXCEEDED FOR THIS TEST?
017226  103417                        BLO     2$              ; BR IF NO
017230                          1$:     RFLAGS  R0              ; GET OPERATOR FLAGS
017230  104421                        TRAP    C$RFLA
017232  032700  000040                BIT     #IDU,R0         ; IS DROPPING INHIBITED?
017236  001013                        BNE     2$              ; BR IF YES.
017240  012737  177777  003102        MOV     #-1,DUFLG       ; NO -- DROP THE UNIT
017246                                ERRDF   4,EMAXDU
017246  104455                        TRAP    C$ERDF
017250  000004                        .WORD   4
017252  017067                        .WORD   EMAXDU
017254  000000                        .WORD   0
017256                                DODU    UNITN
017256  013700  002172                MOV     UNITN,R0
017262  104451                        TRAP    C$DODU
017264                                DOCLN
017264  104444                        TRAP    C$DCLN
017266  012600                  2$:   MOV     (SP)+,R0        ; RESTORE R0
017270  000207                        RTS     PC              ; RETURN TO CALLER
```

```
3198                                            .SBTTL  CKDROP  - CHECK IF UNIT SHOULD BE DROPPED
3199                                    ;+
3200                                    ; CHECK IF UNIT SHOULD BE DROPPED
3201                                    ;-
3202 017272  010046                    CKDROP: MOV     R0,-(SP)
3203 017274                                    FORCERROR       1$,NOTSSR
3204 017304                                    RFLAGS  R0
     017304  104421                            TRAP    C$RFLA
3205 017306  032700  000040                    BIT     #IDU,R0
3206 017312  001010                            BNE     1$
3207 017314  011600                            MOV     (SP),R0
3208 017316  012737  177777  003102            MOV     #-1,DUFLG
3209 017324                                    DODU    UNITN
     017324  013700  002172                    MOV     UNITN,R0
     017330  104451                            TRAP    C$DODU
3210 017332                                    DOCLN                   ;ABORT THE PASS
     017332  104444                            TRAP    C$DCLN
3211 017334  012600                    1$:     MOV     (SP)+,R0
3212 017336  C00207                            RTS     PC
3213
3214
3215                                            .SBTTL  CONFIG  - DETERMINE CONFIGURATION OF SYSTEM
3216                                    ;
3217                                    ; SUBROUTINE - DETERMINE CONFIGURATION OF TSV05 SYSTEM.
3218                                    ;
3219 017340                            CONFIG:
3220 017340  004737  016064                    JSR     PC,SOFINIT
3221 017344  000207                            RTS     PC
3222                                            .SBTTL  KTON,KTOFF      - ENABLE/DISABLE MEMORY MANAGEMENT
3223                                    ;
3224                                    ; SUBROUTINE - ENABLE MEM MGT.
3225                                    ;
3226 017346  005737  003122            KTON:   TST     KTFLG           ; GOT KT?
3227 017352  001403                            BEQ     1$              ; NO.
3228 017354  012737  000001  177572            MOV     #1,SR0          ; YES. ENABLE KT11.
3229 017362  000207                    1$:     RTS     PC
3230
3231                                    ;
3232                                    ; SUBROUTINE - DISABLE MEM MGT.
3233                                    ;
3234 017364  005737  003122            KTOFF:  TST     KTFLG           ; GOT KT11?
3235 017370  001405                            BEQ     1$              ; NO.
3236 017372  000240                            NOP
3237 017374  000240                            NOP
3238 017376  012737  000000  177572            MOV     #0,SR0          ; DISABLE KT.
3239 017404  000207                    1$:     RTS     PC
```

```
                                .SBTTL  SETMAP  - SETUP PAR6 MAPPING

                        ;+
                        ;
                        ;THIS ROUTINE SETS UP KERNEL PAR6 TP HANDLE
                        ;AN 18 BIT ADDRESS. THE OFFSET INTO THE PAGE
                        ;IS RETURNED BIASED TO PAR6.
                        ;
                        ;INPUTS:
                        ;
                        ;       R0      HIGH ORDER ADDRESS BITS
                        ;       R1      LOW ORDER ADDRESS BITS
                        ;
                        ;OUTPUTS:
                        ;
                        ;       R0      OFFSET INTO BLOCK WITH PAR6 BIAS (I.E. THE ADDRESS)
                        ;       CARRY   SET IF SUCCESS
                        ;               CLR IF ERROR
                        ;
                        ;-
017406                  SETMAP:
017406                          SAVREG                          ;SAVE R1-R4 UNTIL NEXT RETURN
017412  005737  003122          TST     KTFLG                   ;SYSTEM HAVE ABOVE 28K?
017416  001433                  BEQ     10$                     ;BR IF NO
017420  010102                  MOV     R1,R2                   ;SAVE LOW ORDER BITS
        000006                  .REPT   6
                                ASR     R0                      ;CONVERT WORD ADDRESS TO 32W BLOCKS
                                ROR     R1                      ;MAKE IT DOUBLE PRECISION
                                .ENDR
017452  042701  000177          BIC     #177,R1                 ;ALINE FOR LOWER 4K BOUNDARY
017456  020137  003122          CMP     R1,KTFLG                ;HIGHER THAN EXISTING MEMORY?
017462  103011                  BHIS    10$                     ;BR IF YES
017464  010137  172352          MOV     R1,@#KIPAR5             ;SETUP MAPPING REGISTER PAR5
017470  042702  160000          BIC     #160000,R2              ;SETUP DISPLACEMENT IN PAGE
017474  062702  120000          ADD     #120000,R2              ;ADD IN PAR5 BIAS
017500  010200                  MOV     R2,R0                   ;RETURN IN R0
017502  000261                  SEC                             ;SET SUCCESS
017504  000401                  BR      15$                     ;
017506  000241          10$:    CLC                             ;SET FAILURE
017510  000207          15$:    RTS     PC                      ;RETURN
                                .SBTTL  FILLMEM - FILL MEMORY WITH BACKGROUND PATTERN
                        ;+
                        ;  FILL MEMORY WITH A BACKGROUND PATTERN
                        ;
                        ; INPUTS:
                        ;
                        ;       R0 = BACKGROUND PATTERN
                        ;       FREE    = FIRST LOCATION AVAILABLE TO DIAGNOSTIC
                        ;       KTFLG   = SET TO HIGHEST MEMORY LOCATION IF > 28K.
                        ;
                        ; OUTPUTS:
                        ;
                        ;       NONE
                        ;-
                        ;
017512                  FILLMEM:
017512                          SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
017516  004737  017364          JSR     PC,KTOFF        ;DISABLE KT.
```

FILLMEM - FILL MEMORY WITH BACKGROUND PATTERN

```
3298 017522 010003                          MOV     R0,R3           ;COPY TEST PATTERN
3299 017524 013701 003114                   MOV     FREE,R1         ;GET FIRST FREE LOCATION
3300 017530 013702 003116                   MOV     FRESIZ,R2       ;SIZE OF FREE SPACE BELOW 28K.
3301 017534 010321                  10$:    MOV     R3,(R1)+        ;STORE A BACKGROUND WORD
3302 017536 005302                          DEC     R2              ;DONE ALL MEMORY IN FREE SPACE?
3303 017540 003375                          BGT     10$             ;BR IF NO
3304 017542 005737 003122                   TST     KTFLG           ; GOT KT?
3305 017546 001477                          BEQ     55$             ; NO. GET OUT.
3306 017550 004737 017346                   JSR     PC,KTON         ; YES. ENABLE KT.
3307 017554 005000                          CLR     R0              ;HIGH ORDER ADDRESS START
3308 017556 013701 003142                   MOV     PST32W,R1       ;GET >28K START ADDRESS (IN 32W BLOCKS)
3309        000006                          .REPT   6
3310                                        CLC                     ;CLEAR C BIT
3311                                        ROL     R1              ;CONVERT BLOCKS TO WORDS
3312                                        ROL     R0              ;MAKE IT DOUBLE PRECISION
3313                                        .ENDR
3314 017626 004737 017406                   JSR     PC,SETMAP       ;SETUP PAR5 MAPPING REGISTER
3315 017632 010320                  30$:    MOV     R3,(R0)+        ;STORE TEST PATTERN IN >28K ADDRESS
3316 017634 C20027 140000                   CMP     R0,#140000      ;END OF PAR5 MAPPING AREA?
3317 017640 103774                          BLO     30$             ;BR IF NO
3318 017642 162700 020000                   SUB     #20000,R0       ;BACKUP INTO PAR5 MAPPING BEGIN
3319 017646 062737 000200 172352            ADD     #200,@#KIPAR5   ;POINT TO NEXT 4K BLOCK >28K.
3320 017654 023727 172352 006000            CMP     @#KIPAR5,#6000  ;END OF MEMORY BELOW XMON AREA?
3321                                ;;;
3322 017662 001427                          BEQ     50$             ;BR IF YES
3323 017664 005737 003134                   TST     T23A            ;11/23A?
3324 017670 001407                          BEQ     35$             ;NO KEEP GOING
3325 017672 013704 177572                   MOV     SR0,R4          ;GET SR0 CONTENTS
3326 017676 042704 177761                   BIC     #177761,R4      ;CLEAR ALL BUT PAGE NUMBER
3327 017702 022704 000016                   CMP     #16,R4          ;SEE IF PAGE 7
3328 017706 001415                          BEQ     50$             ;EXIT IF THERE
3329 017710 005737 003136           35$:    TST     T23B            ;11/23B?
3330 017714 001410                          BEQ     45$             ;NO KEEP GOING
3331 017716 023727 172352 007600            CMP     @#KIPAR5,#7600  ;REACHED 18 BITS?
3332 017724 103001                          BHIS    40$             ;YES
3333 017726 000403                          BR      45$             ;NO KEEP GOING
3334 017730 012737 000020 172516    40$:    MOV     #20,SR3         ;SET 22 BIT RELOCATION
3335 017736 000137 017632           45$:    JMP     30$             ;KEEP GOING ON ETC.
3336 017742 004737 017364           50$:    JSR     PC,KTOFF        ; DISABLE KT.
3337 017746 000207                  55$:    RTS     PC
```

CMPMEM  - COMPARE MEMORY TO BACKGROUND PATTERN

```
                                        .SBTTL  CMPMEM  - COMPARE MEMORY TO BACKGROUND PATTERN
                                ;+
                                ; COMPARE MEMORY WITH A BACKGROUND PATTERN
                                ;
                                ; INPUTS:
                                ;
                                ;       R0 = BACKGROUND PATTERN
                                ;       FREE    = FIRST LOCATION AVAILABLE TO DIAGNOSTIC
                                ;       KTFLG   = SET TO HIGHEST MEMORY LOCATION IF > 28K.
                                ;
                                ; OUTPUTS:
                                ;
                                ;       CARRY   - SET IF NO ERROR
                                ;       CARRY   - CLR IF ERROR
                                ;
                                ; IMPLICIT OUTPUTS:
                                ;
                                ;       ERRHI   - ERROR HIGH ADDRESS
                                ;       ERRLO   - ERROR LOW ADDRESS
                                ;       EXPD    - EXPECTED DATA
                                ;       RECV    - RECEIVED DATA
                                ;-
017750                          CMPMEM:
017750                                  SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
017754  010003                          MOV     R0,R3           ;COPY TEST PATTERN
017756  004737  017364                  JSR     PC,KTOFF        ;DISABLE KT.
017762  013701  003114                  MOV     FREE,R1         ;GET FIRST FREE LOCATION
017766  013702  003116                  MOV     FRESIZ,R2       ;SIZE OF FREE SPACE BELOW 28K.
017772  020311                  10$:    CMP     R3,(R1)         ;FREE SPACE LOCATION EQUAL TO EXPD?
017774  001411                          BEQ     15$             ;BR IF YES
017776  010137  002230                  MOV     R1,ERRLO        ;SAVE ADDRESS IN ERROR
020002  005037  002226                  CLR     ERRHI           ;NO HIGH ADDRESS
020006  010337  002222                  MOV     R3,EXPD         ;SAVE EXPD FOR ERROR REPORT
020012  011137  002224                  MOV     (R1),RECV       ;SAVE RECV FOR ERROR REPORT
020016  000474                          BR      50$             ;
020020  005721                  15$:    TST     (R1)+           ;POINT TO NEXT ADDRESS
020022  005302                          DEC     R2              ;DONE ALL MEMORY IN FREE SPACE?
020024  003362                          BGT     10$             ;BR IF NO
020026  005737  003122                  TST     KTFLG           ; GOT KT?
020032  001472                          BEQ     55$             ; NO. GET OUT.
020034  004737  017346                  JSR     PC,KTON         ; YES. ENABLE KT.
020040  005000                          CLR     R0              ;HIGH ORDER ADDRESS START
020042  013701  003142                  MOV     PST32W,R1       ;GET >28K START ADDRESS (IN 32W BLOCKS)
                000006                  .REPT   6
                                        ROL     R1              ;CONVERT BLOCKS TO WORDS
                                        ROL     R0              ;MAKE IT DOUBLE PRECISION
                                        .ENDR
020076  042701  000177                  BIC     #177,R1         ;ALINE 4K BOUNDARY
020102  010046                          MOV     R0,-(SP)        ;SAVE HIGH ORDER
020104  010146                          MOV     R1,-(SP)        ;SAVE LOW ORDER
020106  004737  017406                  JSR     PC,SETMAP       ;SETUP PAR6 MAPPING REGISTER
020112  010004                          MOV     R0,R4           ;COPY ADDRESS BIASED TO PAR6
020114  012601                          MOV     (SP)+,R1        ;RESTORE LOW ORDER IN NON PAR6 FORMAT
020116  012600                          MOV     (SP)+,R0        ;RESTORE HIGH ORDER IN NON PAR6 FORMAT
020120  020314                  30$:    CMP     R3,(R4)         ;ABOVE 28K LOCATION EQUAL EXPD?
020122  001411                          BEQ     32$             ;BR IF YES
020124  010037  002226                  MOV     R0,ERRHI        ;SAVE HIGH ORDER IN ERROR
```

CMPMEM  - COMPARE MEMORY TO BACKGROUND PATTERN

```
3396 020130  010137  002230                    MOV     R1,ERRLO        ;SAVE LOW ORDER IN ERROR
3397 020134  010337  002222                    MOV     R3,EXPD         ;SAVE EXPD FOR ERROR REPORT
3398 020140  011437  002224                    MOV     (R4),RECV       ;SAVE RECV FOR ERROR REPORT
3399 020144  000421                            BR      50$             ;
3400 020146  062701  000002          32$:      ADD     #2,R1           ;UPDATE NON PAR6 ADDRESS
3401 020152  005500                            ADC     R0              ;MAKE IT DOUBLE PRECISION ADD
3402 020154  062704  000002                    ADD     #2,R4           ;UPDATE PAR FORMAT ADDRESS
3403 020160  020427  140000                    CMP     R4,#140000      ;END OF PAR5 MAPPING AREA?
3404 020164  103755                            BLO     30$             ;BR IF NO
3405 020166  162704  020000                    SUB     #20000,R4       ;BACKUP INTO PAR6 MAPPING BEGIN
3406 020172  062737  000200  172352            ADD     #200,@#KIPAR5   ;POINT TO NEXT 4K BLOCK >28K.
3407 020200  023737  172352  003122            CMP     @#KIPAR5,KTFLG  ;END OF MEMORY?
3408 020206  101744                            BLOS    30$             ;BR IF NO
3409 020210  004737  017364          50$:      JSR     PC,KTOFF        ;TURN OFF MEMORY MAPPING
3410 020214  000241                            CLC                     ;SET FAILURE
3411 020216  000403                            BR      60$             ;
3412 020220  004737  017364          55$:      JSR     PC,KTOFF        ;TURN OFF MEMORY MAPPING
3413 020224  000261                            SEC                     ;SET SUCCESS
3414 020226  000207                  60$:      RTS     PC
3415                                           .SBTTL  REGSAV  - SAVE R1-R5 ON STACK
3416                                 ;+
3417                                 ;
3418                                 ;ROUTINE TO
3419                                 ;SAVE R1 THROUGH R5 ON THE STACK
3420                                 ;
3421                                 ;CALLING SEQUENCE:
3422                                 ;
3423                                 ;       JSR     R5,REGSAV
3424                                 ;
3425                                 ;THIS IS A COOROUTINE WHICH TRANSFER CONTROL BACK TO
3426                                 ;THE CALLING ROUTINE. AT THE END OF THE CALLING ROUTINE,
3427                                 ;THE RTS PC RETURNS CONTROL TO THIS ROUTINE TO RESTORE
3428                                 ;REGISTERS.
3429                                 ;
3430                                 ;THIS ROUTINE SHOULD ONLY BE CALLED FROM ROUTINES WHICH ARE
3431                                 ;CALLED VIA A JSR PC INSTRUCTION
3432                                 ;
3433                                 ;-
3434
3435 020230                         REGSAV:
3436 020230  010446                            MOV     R4,-(SP)
3437 020232  010346                            MOV     R3,-(SP)
3438 020234  010246                            MOV     R2,-(SP)
3439 020236  010146                            MOV     R1,-(SP)
3440 020240  010546                            MOV     R5,-(SP)
3441 020242  016605  000012                    MOV     10.(SP),R5
3442 020246  004736                            JSR     PC,@(SP)+
3443 020250  012601                            MOV     (SP)+,R1
3444 020252  012602                            MOV     (SP)+,R2
3445 020254  012603                            MOV     (SP)+,R3
3446 020256  012604                            MOV     (SP)+,R4
3447 020260  012605                            MOV     (SP)+,R5
3448 020262  000207                            RTS     PC
```

```
                                        .SBTTL  GETPAT  - GET 8 BIT PATTERN FROM OPERATOR
                                ;+
                                ;ROUTINE TO REQUEST AN 8 BIT DATA PATTERN FROM THE OPERATOR
                                ;
                                ;INPUTS:        NONE.
                                ;
                                ;OUTPUTS:
                                ;       R0      OCTAL NUMBER FROM THE OPERATOR
                                ;
                                ;CALLING SEQUENCE:
                                ;       JSR     PC,GETPAT
                                ;-
020264                          GETPAT::
                                        SAVREG                          ;SAVE THE GENERAL REGISTERS
020264                          1$:     GMANID  DATASC,PATDAT,0,377,0,377,NO
020270  104443                          TRAP    C$GMAN
020272  000406                          BR      10000$
020274  020320                          .WORD   PATDAT
020276  C00022                          .WORD   T$CODE
020300  020322                          .WORD   DATASC
020302  000377                          .WORD   377
020304  000000                          .WORD   T$LOLIM
020306  000377                          .WORD   T$HILIM
020310                          10000$:
020310                                  BNCOMPLETE      1$      ;RETRY IF ERROR
020310  103367                          BCC     1$
020312  013700  020320                  MOV     PATDAT,R0       ;DATA PATTERN FROM OPERATOR
020316  000207                          RTS     PC              ;RETURN TO CALLER

                                ;+
                                ;LOCAL DATA AREA
                                ;-

020320  000000                  PATDAT: .WORD   0               ;TEMPORARY STORAGE FOR DATA
020322      105     116     124 DATASC: .ASCIZ  'ENTER DATA PATTERN'
                                        .EVEN
```

GETSEL  - ISSUE MENU AND GET OPERATOR RESPONSE

```
                                .SBTTL  GETSEL  - ISSUE MENU AND GET OPERATOR RESPONSE
                                ;+
                                ;ROUTINE TO ISSUE A MENU AND GET THE OPERATOR'S RESPONSE.
                                ;
                                ;INPUTS:
                                ;       R0      ADDRESS OF ASCIZ STRING OF MENU
                                ;       R1      MAXIMUM ALLOWABLE OPERATOR RESPONSE
                                ;
                                ;OUTPUTS:
                                ;       R0      NUMBER OF THE OPERATOR'S SELECTION
                                ;-
020346                          GETSEL::
                                        SAVREG                          ;SAVE GENERAL REGISTERS
020352  010002                          MOV     R0,R2                   ;SAVE THE MENU ADDRESS
020354  010203                  1$:     MOV     R2,R3                   ;START OF MENU STRING
020356  005713                  2$:     TST     (R3)                    ;END OF ASCII ?
020360  001412                          BEQ     3$                      ;BRANCH IF ALL LINES DISPLAYED
020362                                  PRINTF  @SELASC,(R3)+           ;DISPLAY THE MENU
020362  C12346                          MOV     (R3)+,-(SP)
020364  012746  020532                  MOV     @SELASC,-(SP)
020370  012746  000002                  MOV     @2.-(SP)
020374  010600                          MOV     SP,R0
020376  104417                          TRAP    C$PNTF
020400  062706  000006                  ADD     @6,SP
020404  000764                          BR      2$
020406                          3$:     GMANID  MENASC,MENRES,D,-1,0,-1,NO
020406  104443                          TRAP    C$GMAN
020410  000406                          BR      10001$
020412  020566                          .WORD   MENRES
020414  000042                          .WORD   T$CODE
020416  020537                          .WORD   MENASC
020420  177777                          .WORD   -1
020422  000000                          .WORD   T$LOLIM
020424  177777                          .WORD   T$HILIM
020426                          10001$:
020426                                  BNCOMPLETE      1$              ;RETRY IF ERROR
020426  103352                          BCC     1$
020430  013700  020566                  MOV     MENRES,R0               ;GET THE OPERATOR'S REPLY
020434  020001                          CMP     R0,R1                   ;COMPARE TO MAXIMUM ALLOWED
020436  101411                          BLOS    5$                      ;BRANCH IF OK
020440                                  PRINTF  @MENERR                 ;DISPLAY ERROR MESSAGE
020440  012746  020464                  MOV     @MENERR,-(SP)
020444  012746  000001                  MOV     @1,-(SP)
020450  010600                          MOV     SP,R0
020452  104417                          TRAP    C$PNTF
020454  062706  000004                  ADD     @4,SP
020460  000735                          BR      1$                      ;RETRY
020462  000207                  5$:     RTS     PC                      ;RETURN TO CALLER
020464     045     116     045  MENERR: .ASCIZ   '%N%A *** Menu Selection Too Large ***'
020532     045     116     045  SELASC: .ASCIZ   '%N%T'
020537     105     156     164  MENASC: .ASCIZ   'Enter Menu Selection: '
                                        .EVEN
020566  000000                  MENRES:         .WORD   0
```

CHKMAN  - CHECK MANUAL INTERVENTION LEGALITY

```
                                        .SBTTL  CHKMAN  - CHECK MANUAL INTERVENTION LEGALITY
                                ;+
                                ;
                                ;ROUTINE TO TEST FOR MANUAL INTERVENTION LEGALITY.
                                ;
                                ;INPUT:
                                ;
                                ;       NONE.
                                ;
                                ;OUTPUT:
                                ;
                                ;       CARRY   0       MANUAL INTERVENTION NOT ALLOWED
                                ;               1       MANUAL INTERVENTION IS OK
                                ;
                                ;SIDE EFFECTS:
                                ;
                                ;       A MESSAGE IS DISPLAYED WARNING THAT TEST IS
                                ;       NOT EXECUTED IF MANUAL INTERVENTION IS NOT
                                ;       ALLOWED.
                                ;
                                ;-

020570                          CHKMAN::
                                        SAVREG                  ;SAVE THE REGISTERS
020570                                  MANUAL                  ;SEE IF MANUAL INTERVENTION OK
020574  104450                          TRAP    C$MANI
020576                                  BCOMPLETE 1$            ;BRANCH IF ALLOWED
020576  103411                          BCS     1$
020600                                  PRINTF  #NOMAN          ;PRINT THE WARNING MESSAGE
020600  012746  020624                  MOV     #NOMAN,-(SP)
020604  012746  000001                  MOV     #1,-(SP)
020610  010600                          MOV     SP,R0
020612  104417                          TRAP    C$PNTF
020614  062706  000004                  ADD     #4,SP
020620  000241                          CLC                     ;CLEAR CARRY FOR ERROR
020622  000207                  1$:     RTS     PC              ;RETURN

020624      045     116     045 NOMAN:  .ASCIZ  '<N><A *** Manual Intervention not Allowed - Test Aborted ***'-
                                        .even
```

```
                                        .SBTTL  ENVIRN  - SETUP FREE DIAGNOSTIC SPACE
                                ;
                                ; SUBROUTINE TO SET-UP VARIOUS ENVIRONMENTAL PARAMETERS.
                                ;
020720                          ENVIRN: MEMORY  R0
020720  104431                          TRAP    C$MEM
020722  010037  003114                  MOV     R0,FREE         ; GET 1ST FREE ADDRESS...
020726  062737  000002  003114          ADD     #2,FREE
020734  011037  003116                  MOV     (R0),FRESIZ     ;...AND WORD COUNT.
020740  162737  000004  003116          SUB     #4,FRESIZ
020746  013702  002012                  MOV     L$UNIT,R2       ; GET NUMBER OF UNITS
020752  162737  000007  003116  10$:     SUB     #7,FRESIZ       ; TAKE AWAY 7 WORDS PER UNIT
020760  005302                          DEC     R2
020762  001373                          BNE     10$
020764  013700  003114                  MOV     FREE,R0         ;GET FIRST FREE ADDRESS
020770  063700  003116                  ADD     FRESIZ,R0       ;POINT TO LAST FREE ADDRESS
020774  162700  000002                  SUB     #2,R0           ;BACKUP 1 WORD
021000  010037  003120                  MOV     R0,FREEHI       ;STORE LAST FREE ADDRESS
021004  000240                          NOP                     ;*****************************************
021006  012701  177520                  MOV     #BDVPCR,R1      ;GET BDV11 PCR ADDRESS
021012  010102                          MOV     R1,R2           ;COPY TO R2
021014  062702  000002                  ADD     #2,R2           ;SET THE RANGE
021020  004737  016466                  JSR     PC,XNXM         ;SEE IF WE HAVE ONE
021024  103001                          BCC     15$             ;OK TO SET FLAGS
021026  000423                          BR      40$             ;RETURN WITH FLAGS CLEAR
021030  013701  177520          15$:    MOV     BDVPCR,R1       ;SAVE PCR CONTENTS
021034  062701  000001                  ADD     #1,R1           ;ADD ONE TO IT
021040  012702  177520                  MOV     #BDVPCR,R2      ;GET BDV11 PCR ADDRESS
021044  005212                          INC     (R2)            ;TRY TO WRITE TO IT
021046  013703  177520                  MOV     BDVPCR,R3       ;GET RESULTS
021052  020103                          CMP     R1,R3           ;DID IT CHANGE?
021054  001006                          BNE     20$             ;NO, MUST BE 11/23B
021056  005237  003134                  INC     T23A            ;SET THE FLAG
021062  042737  170000  002120          BIC     #170000,L$HIME  ;SUPERVISOR COULD BE WRONG
                                        NOP                     ;BR 40$ FOR RELEASE
                                ;
                                ;       PRINTF  #M8186          ;TELL THE SYSTEM TYPE
021070  000402                          BR      40$             ;RETURN
021072  005237  003136          20$:    INC     T23B            ;SET THE FLAG
                                ;       NOP                     ;BR 40$ FOR RELEASE
                                ;       PRINTF  #M8189          ;TELL THE SYSTEM TYPE
021076                          40$:
021076  000207                          RTS     PC              ;RETURN
```

```
                                        .SBTTL  KTINIT  - SETUP KT11 MEMORY MANAGEMENT REGISTERS
                                ;+
                                ;
                                ;ROUTINE TO INIT KT-11
                                ;
                                ;-
                                KTINIT:
021100                                  CLR     KTFLG           ; INIT >28K MEMORY FLAG
021100  005037  003122                   CLR     KTENABLE        ; INIT TEST >28K FLAG
021104  005037  003124
021110  023727  002120  001577           CMP     L$HIME,#1577    ; GOT ENOUGH MEMORY (>28K)?
021116  101454                          BLOS    9$              ; NO.
021120  013700  000004                   MOV     @#ERRVEC,R0     ; SAVE OLD ERR VEC PTR.
021124  012737  021236  000004           MOV     #2$,@#ERRVEC    ; SET ERR VEC PTR.
021132  005737  177572                   TST     @#SR0           ; GOT KT11?
021136  000240                          NOP                     ;  (TRAP IF NO).
021140  013737  002120  003122           MOV     L$HIME,KTFLG    ; YES. SET KT FLAG.
021146  022737  007777  003122           CMP     #7777,KTFLG     ; >256K ?
021154  100404                          BMI     4$              ; NO
021156  042737  003777  003122           BIC     #3777,KTFLG     ; ALIGN ON BOUNDARY
021164  000403                          BR      5$
021166  042737  000177  003122  4$:      BIC     #177,KTFLG      ;
021174  010037  000004          5$:      MOV     R0,@#ERRVEC     ; RESTORE OLD ERR VEC PTR.
021200  005000                          CLR     R0              ; R0 = AR DATA.
021202  012701  172340                   MOV     #KIPAR0,R1      ; R1 = KI REGS PTR.
021206  012761  077406  177740  1$:      MOV     #77406,-40(R1)  ; SET DESCRIPTOR REG.
021214  010021                          MOV     R0,(R1)+        ; SET KIPAR REG.
021216  062700  000200                   ADD     #200,R0         ; BUMP AR DATA BY "4K".
021222  020027  002000                   CMP     R0,#2000        ; AT "I/O"?
021226  001367                          BNE     1$              ; NO.
021230  012741  177600                   MOV     #177600,-(R1)   ; YES. SET KTPAR7 FOR I/O.
021234  000405                          BR      9$
                                ;
021236  012716  021244          2$:      MOV     #6$,(SP)        ; SET UP RETURN
021242  000002                          RTI                     ; RTI TO NEXT LOCATION
                                ;
021244  010037  000004          6$:      MOV     R0,@#ERRVEC     ; RESTORE OLD ERR VEC PTR.
                                ;
021250  000207                  9$:      RTS     PC
```

KTINIT  - SETUP KT11 MEMORY MANAGEMENT REGISTERS

```
   3625
```

KTINIT  - SETUP KT11 MEMORY MANAGEMENT REGISTERS

```
3627                                    ;*
3628                                    ;       SUBROUTINE TO SET EXTENDED FEATURES SWITCH
3629                                    ;
3630                                    ;       Requires that SOFINIT and WRTCHR have been done previous to call.
3631                                    ;
3632                                    ;
3633                                    ;INPUTS:
3634                                    ;       R5      CURRENT UNIT NUMBER
3635                                    ;OUTPUTS:
3636                                    ;       The Extended Features Switch is set.
3637                                    ;
3638                                    ;-
3639
3640
```

KTINIT - SETUP KT11 MEMORY MANAGEMENT REGISTERS

```
                                        ;*
                                        ;       SUBROUTINE TO SET EXTENDED FEATURES SWITCH
                                        ;
                                        ;       Requires that SOFINIT and WRTCHR have been done previous to call.
                                        ;
                                        ;
                                        ;INPUTS:
                                        ;       R5      CURRENT UNIT NUMBER
                                        ;OUTPUTS:
                                        ;       The Extended Features Switch is set.
                                        ;
                                        ;-

021252                                  INVERT::
021252  013705  002176                          mov     csraddr,r5
021256  004737  016064                          jsr     pc,sofinit
021262  103406                                  bcs     25$
021264  010001                                  mov     r0,r1
021266                                          errdf   errno,sfierr,sfimsg
021266  104455                                  TRAP    C$ERDF
021270  001513                                  .WORD   843
021272  003650                                  .WORD   sfierr
021274  012124                                  .WORD   sfimsg
021276  104455                                                          trap c$erdf
021300                                  25$:    ckloop
021300  104406                                  TRAP    C$CLP1
021302  013737  002172  022140                  mov     unitn,t39dsw
021310  012704  022120                          mov     #t39pk2,r4
021314  004737  010752                          jsr     pc,wrtchr
021320  103406                                  bcs     50$
021322  010001                                  mov     r0,r1
021324                                          errhrd  errno,wrtmsg,sfimsg
021324  104456                                  TRAP    C$ERHRD
021326  001513                                  .WORD   843
021330  005054                                  .WORD   wrtmsg
021332  012124                                  .WORD   sfimsg
021334  104456                                                          trap c$erhrd
021336                                  50$:    ckloop
021336  104406                                  TRAP    C$CLP1
021340  013701  021450                          mov     t39bfr+12,r1
021344  032701  000200                          bit     #bit7,r1
021350  001020                                  bne     1$
021352  012737  100206  022170  10$:    MOV     #100206,CMDPKT          ; WRT SUB-SYS MEM CMD
021360  012737  022200  022172          MOV     #WSMBK,CMDPKT+2         ; MSG BUF ADDR
021366  012737  000006  022176          MOV     #6,CMDPKT+6             ; BYTE COUNT
021374  012737  100010  022200          MOV     #100010,WSMBK           ; INVERT THE SWITCH
021402  012704  022170                  MOV     #CMDPKT,R4              ; SET CMDPKT INTO R4
021406  004737  010752                  JSR     PC,WRTCHR               ; DO IT
021412  000207                  1$:     RTS     PC                      ; RETURN
                                
021414  000000                T39DLY: .WORD   0                               ;DELAY COUNTER FOR TEST
021420                                  .=<.+10>&177770
021420                          T39PACKET:                              ;COMMAND PACKET FOR TEST
021420  140006                          .WORD   140006                  ;WRITE SUBSYSTEM MEM. CMD,  ACK,CVC=1
021422  021430                          .WORD   T39TAD                  ;ADDRESS OF CHARACTERISTICS BLOCK
021424  000000                          .WORD   0
021426  000012                          .WORD   10.                     ;STARTING VALUE OF BLOCK SIZE
```

KTINIT  - SETUP KT11 MEMORY MANAGEMENT REGISTERS

```
                                T39TAD:                         ;CHARACTERISTICS DATA BLOCK
                                T39BS0: .BYTE   0               ;BSELO BYTE
                                T39BS1: .BYTE   0               ;BSEL1 BYTE
                                T39BS2: .WORD   0               ;BSEL1 WORD
                                        .WORD   0               ;DATA
                                T39BFR: .BLKW   150.            ;MESSAGE BUFFER

                                        .=<.+10>&177770
                                T39PK2:                         ;COMMAND PACKET FOR TEST
                                        .WORD   140004          ;WRITE CHARA. MEM. CMND.,  ACK,CVC=1
                                        .WORD   T39DTA          ;ADDRESS OF SELECT DATA BLOCK
                                        .WORD   0
                                        .WORD   10.             ;STARTING VALUE OF BLOCK SIZE

                                T39DTA:                         ;SELECT DATA BLOCK
                                        .WORD   T39BFR          ;ADDRESS OF MESSAGE BUFFER
                                        .WORD   0
                                        .WORD   256.            ;LENGTH OF MESSAGE BUFFER
                                T39EAI: .WORD   0               ;EAI BIT WORD
                                T39DSW: .WORD   0               ;DRIVE SELECT WORD ETC
                                        .=<.+10>&177770
                                T39PK3: .WORD   140012          ;MESSAGE BUFFER RELEASE COMMAND
                                        .WORD   0               ;NOT USED
                                ;
                                ;WRITE TAPE PACKET
                                ;
                                        .=<.+10>&177770
                                T39PK4: .WORD   140005          ;WRITE, ACK, CVC=1 COMMAND
                                T39WR:  .WORD   0               ;ADDRESS OF WRITE BUFFER
                                        .WORD   0               ;MORE ADDRESS OF WRITE BUFFER
                                T39SIZ: .WORD   256.            ;SIZE OF RECORD

                                ;       COMMAND PACKET.

                                .       =       <.+3>&177774    ;MUST BE ON MOD 4 BOUNDRY.

                                CMDPKT:: 0                      ;1ST WORD IS TSO5 COMMAND.
                                         0                      ;2ND WORD IS THE BUFFER LOW ADDRESS.
                                         0                      ;3RD WORD IS THE BUFFER HIGH ADDRESS.
                                         0                      ;4TH WORD IS THE BYTE/RECORD/FILE COUNT.

                                ;       WRITE SUB-SYSTEM MEMORY CHARACTERISTIC BLOCK.

                                WSMBK:: 0                       ;1ST WORD:: SEL 0
                                        0                       ;2ND WORD:: SEL 2
                                        0                       ;3RD WORD:: SEL 4
                                        .EVEN
                                ;+
                                ;       SUBROUTINE TO CHECK WETHER OR NOT WE'LL TEST NXM
                                ;
                                ;
                                ;INPUTS:
                                ;OUTPUTS:
                                ;       The NXMFLG is set if we can test.
                                ;       The NXMLO and NXMHI addresses are setup.
```

KTINIT  - SETUP KT11 MEMORY MANAGEMENT REGISTERS

```
3754                                    ;-
3755
3756 022206                             MEMCK::
3757
3758 022206                                     SAVREG                  ;SAVE THE REGISTERS
3759 022212  005037  003126                     CLR     NXMFLG          ;CLEAR THE FLAG
3760 022216  005037  003130                     CLR     NXMLO           ;CLEAR THE TEST ADDRESS LO
3761 022222  005037  003132                     CLR     NXMHI           ;CLEAR THE TEST ADDRESS HI
3762 022226  005737  003136                     TST     T23B            ;IS IT A 11/23B?
3763 022232  001407                             BEQ     1$              ;NO
3764 022234  023727  002120  007777             CMP     L$HIME,#7777    ; GREATER THAN 128K
3765 022242  103406                             BLO     2$              ; NO
3766 022244  004737  022362                     JSR     PC,NXMTST       ;SETUP THE ADDRESS
3767 022250  000427                             BR      13$             ;SET THE FLAG AND EXIT
3768 022252  005737  003134             1$:     TST     T23A            ;IS IT A 11/23A?
3769 022256  001413                             BEQ     4$              ;NO
3770 022260  023727  002120  005777     2$:     CMP     L$HIME,#5777    ;GREATER THAN 96K
3771 022266  101023                             BHI     14$             ;YES,23A/23B WITH 128K MEMORY
3772 022270  C23727  002120  003777             CMP     L$HIME,#3777    ;GREATER THAN 64K BUT LESS THAN 92K?
3773 022276  103403                             BLO     4$              ;NO, CHECK 24K
3774 022300  004737  022362                     JSR     PC,NXMTST       ;SETUP THE ADDRESS
3775 022304  000411                             BR      13$             ;SET THE FLAG AND EXIT
3776 022306  023727  002120  001577     4$:     CMP     L$HIME,#1577    ;GREATER THAN 24K BUT LESS THAN 64K?
3777 022314  103410                             BLO     14$             ;NO, TELL THEM AND EXIT WITH FLAG CLEAR
3778 022316  004737  022362                     JSR     PC,NXMTST       ;SETUP THE ADDRESS
3779 022322  062737  000077  003132             ADD     #77,NXMHI       ;FOOL THE 11/02 & 11/03
3780 022330  005237  003126             13$:    INC     NXMFLG          ;SET THE FLAG
3781 022334  000411                             BR      15$             ;EXIT
3782 022336  000410                     14$:    BR      15$             ;NOP FOR PRINTOUT
3783 022340                                     PRINTF  #NOMEM          ;TELL THEM & EXIT ***NO PRINT*****
     022340  012746  005456                     MOV     #NOMEM,-(SP)
     022344  012746  000001                     MOV     #1,-(SP)
     022350  010600                             MOV     SP,R0
     022352  104417                             TRAP    C$PNTF
     022354  062706  000004                     ADD     #4,SP
3784 022360  000207                     15$:    RTS     PC                      ;RETURN
3785
3786                                    ;+
3787                                    ;       SUBROUTINE TO SETUP THE NXM ADDRESS FOR TESTING
3788                                    ;
3789                                    ;OUTPUTS:NXMLO,NXMHI            ;SETUP WITH NXM ADDRESS
3790                                    ;
3791                                    ;-
3792
3793 022362  013701  002120             NXMTST: MOV     L$HIME,R1               ;GET TOP OF MEMORY
3794 022366  062701  000200                     ADD     #200,R1                 ;MAKE IT I/O BLOCK OR OTHER NXM
3795 022372  042701  000177                     BIC     #177,R1
3796 022376  010102                             MOV     R1,R2                   ;RESAVE RESULTS
3797         000006                             .REPT   6
3798                                            ASL     R1                      ;PUT IN PLACE FOR XFER
3799                                            .ENDR
3800 022414  010137  003130                     MOV     R1,NXMLO                ;SAVE TEST ADDRESS LOW
3801         000012                             .REPT   10.
3802                                            ASR     R2                      ;PUT IN PLACE FOR XFER
3803                                            .ENDR
3804 022444  042702  177700                     BIC     #177700,R2              ;DON'T WANT ILA!
3805 022450  010237  003132                     MOV     R2,NXMHI                ;SAVE TEST ADDRESS HIGH
```

KTINIT  - SETUP KT11 MEMORY MANAGEMENT REGISTERS

```
 3806 022454  000207                          RTS     PC                      ;RETURN
 3807
 3808 022456                                   ENDMOD
 3817                                          .TITLE  TSV4 - MISCELLANEOUS SECTIONS
 3818
 3819 022456                                   BGNMOD  TSV4
      022456                          TSV4::
 3820
 3826
 3827
 3828
 3829                                          .SBTTL  PROTECTION TABLE
 3830 022456                                   BGNPROT
      022456                          L$PROT::
 3831 022456  177777  177777  177777          .WORD   -1, -1, -1, -1          ;NO DEVICE PROTECTION REQUIRED.
 3832 022466                                   ENDPROT
```

INITIALIZE SECTION

```
                                        .SBTTL  INITIALIZE SECTION

                                ;++
                                ;THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
                                ;AT THE BEGINNING OF EACH PASS.
                                ;
                                ;IF "START" OR "RESTART", SET QUICK-PASS FLAG AND BUS-INIT.
                                ;IF "CONTINUE", NOTHING IS REQUIRED.
                                ;
                                ;--
                                ;+
                                ;INSERT TEMPORARY JUMP TO ODT
                                ;-
022466                                  BGNINIT
022466                          L$INIT::
022466  005037  002216          40$:    CLR     EXTFEA
022472  005037  003126                  CLR     NXMFLG
022476  012737  006356  002170          MOV     #EPRT1,EPRTSW           ;SET UP PRIMARY MESSAGE FOR REPLACEMENT
022504  C05037  003144                  CLR     SIFLAG                  ;CLEAR "SOFT INIT" FLAG
022510  005037  003124                  CLR     KTENABLE                ;CLEAR TEST ABOVE 28K FLAG
022514  005037  002272                  CLR     RAMSIZ                  ;CLEAR RAM SIZE FOR RAMERR ROUTINE
022520                                  READEF  #EF.CONTINUE
022520  012700  000036                  MOV     #EF.CONTINUE,R0
022524  104447                          TRAP    C$REFG
022526                                  BNCOMPLETE 1$
022526  103023                          BCC     1$
022530  023737  002172  002012          CMP     UNITN,L$UNIT            ;UNIT IN RANGE?
022536  103070                          BHIS    4$                      ;BR IF NO.
022540  005737  003102                  TST     DUFLG                   ;DROPPED UNIT?
022544  100472                          BMI     NXTU                    ;BR IF YES
022546  013701  002172                  MOV     UNITN,R1
022552  006301                          ASL     R1
022554  005761  003166                  TST     ERTABL(R1)
022560  001516                          BEQ     SETU
022562  032761  040000  003166          BIT     #BIT14,ERTABL(R1)       ;DROPPED?
022570  001060                          BNE     NXTU
022572                                  EXIT    INIT                    ;DO NOTHING IF "CONTINUE".
022572  104432                          TRAP    C$EXIT
022574  000416                          .WORD   L10030-.
022576                          1$:     READEF  #EF.NEW
022576  012700  000035                  MOV     #EF.NEW,R0
022602  104447                          TRAP    C$REFG
022604                                  BNCOMPLETE NXTU                 ;TAKE NEXT UNIT IF NOT NEW PASS.
022604  103052                          BCC     NXTU
022606                                  READEF  #EF.START
022606  012700  000040                  MOV     #EF.START,R0
022612  104447                          TRAP    C$REFG
022614                                  BCOMPLETE 2$
022614  103404                          BCS     2$
022616                                  READEF  #EF.RESTART
022616  012700  000037                  MOV     #EF.RESTART,R0
022622  104447                          TRAP    C$REFG
022624                                  BNCOMPLETE 31$
022624  103031                          BCC     31$
022626                          2$:                                     ;1ST PASS, BUS-INIT...
022626                                  BRESET                          ;BUS RESET.
022626  104433                          TRAP    C$RESET
```

```
022630  005037  002204                  CLR     TSTCNT                  ;NUMBER OF TESTS RUN IN PASS
022634  005037  002212                  CLR     FATFLG                  ;CLEAR FATAL ERROR COUNT
022640  005037  003134                  CLR     T23A                    ;CLEAR 11/23A FLAG
022644  005037  003136                  CLR     T23B                    ;CLEAR 11/23B FLAG
                                ;       MOV     #340,-(SP)
                                ;       MOV     #20$,-(SP)              ;RETURN TO DEBUGGER
                                ;       JMP     O.ODT           ;;@@ENTER THE DEBUGGER
022650  005037  003370                  CLR     SKIPT           ;CLEAR THE SUBTEST "SKIPPER"
022654                          20$:
022654  012737  177777  002174          MOV     #-1,QVP                 ;...QUICK VERIFY...
022662  004737  020720                  JSR     PC,ENVIRN               ;SET ENVIRONMENT.
022666  004737  021100                  JSR     PC,KTINIT               ;INITIALIZE KT MEMORY MANAGEMENT
022672  012700  003166                  MOV     #ERTABL,R0
022676  005020                  30$:    CLR     (R0)+                   ;CLEAR THE ERROR TABLE
022700  020027  003366                  CMP     R0,#ERTABE
022704  103774                          BLO     30$
022706  000404                          BR      4$
022710  005037  002174          31$:    CLR     QVP
022714  C00137  022764                  JMP     PASRPT                  ;GO REPORT THE STATUS

022720                          4$:
022720  012737  177777  002172  NEWPAS: MOV     #-1,UNITN               ;INIT UNIT NUMBER...
022726  005037  002210                  CLR     DEVCNT                  ;CLEAR COUNT OF DEVICES RUNNING
022732                          NXTU:   BREAK
022732  104422                          TRAP    C$BRK
022734  005237  002172                  INC     UNITN                   ;...AND SET NEXT UNIT NUMBER.
022740  023737  002172  002012          CMP     UNITN,L$UNIT
022746  103423                          BLO     SETU
022750  012737  177777  003102          MOV     #-1,DUFLG
022756  000401                          BR      11$
022760                                  DOCLN                           ;ABORT, NO MORE UNITS.
022760  104444                          TRAP    C$DCLN
022762  000240                  11$:    NOP
022764                          PASRPT:
022764  023727  002012  000001          CMP     L$UNIT,#1               ;HOW MANY UNITS SELECTED?
022772  101752                          BLOS    NEWPAS                  ;BR IF ONLY 1
022774  005737  002210                  TST     DEVCNT                  ;ARE ANY STILL RUNNING?
023000  001747                          BEQ     NEWPAS                  ;BR IF NO
023002                                  RFLAGS  R0
023002  104421                          TRAP    C$RFLA
023004  032700  000100                  BIT     #ISR,R0                 ;SHOULD WE PRINT STATISTICS
023010  001343                          BNE     NEWPAS                  ;BR IF NO

023012                                  DORPT
023012  104424                          TRAP    C$DRPT
023014  000741                          BR      NEWPAS
023016                          10$:

023016                          SETU:   GPHARD  UNITN,R0                ;GET UNIT N P-TABLE POINTER.
023016  013700  002172                  MOV     UNITN,R0
023022  104442                          TRAP    C$GPHRD
023024                                  BNCOMPLETE NXTU                 ;BR IF UNIT NOT AVAILABLE.
023024  103342                          BCC     NXTU
023026  005037  003102                  CLR     DUFLG                   ;CLEAR "DROPPED" FLAG.
023032  005237  002210                  INC     DEVCNT
023036  012001                          MOV     (R0)+,R1                ;GET 1ST REGISTER ADDRESS.
023040  010137  002176                  MOV     R1,CSRADDR              ;ADDRESS OF REGISTERS OF UNIT UNDER TEST
```

INITIALIZE SECTION

```
                                        MOV     (R0)+,R1                ;GET VECTOR ADDRESS.
                                        ;MOV    (R0),R2                 ;GET INTERRUPT PRIORITY
                                        ;MOV    R2,IPRI                 ;SET INTERRUPT PRIORITY.
                                        MOV     R1,IVEC                 ;SET INTERRUPT VECTOR POINTER...
                                        MOV     #INTR,(R1)+             ;...VECTOR...
                                        MOV     IPRI,(R1)+              ;...AND PRIORITY.

                                1$:
                                ;       TST     QVP             ;1ST PASS ??
                                ;       BEQ     5$              ;NO, SKIP THE PASS 1 STUFF.

                                ;
                                ;1ST PASS, CHECK THAT DEVICE ADDRESSES ARE VALID, AND
                                ;THAT THE DISPLAY STATUS IS PROPERLY INITIALIZED.
                                ;
                                        MOV     UNITN,R1
                                        ASL     R1
                                        BIS     #BIT15,ERTABL(R1)       ;SAY DEVICE RUNNING
                                        CLR     EXTA                    ;CLEAR ERROR EXTENSION FLAG.
                                        CMP     L$UNIT,#1               ;ARE WE TESTING MULTIPLE UNITS?
                                        BLOS    10$                     ;BR IF NO.
                                        RFLAGS  R0                      ;YES -- GET OPERATOR FLAGS.
                                        TRAP    C$RFLA
                                        BIT     #PNT,R0                 ;SHOULD WE PRINT UNIT #?
                                        BEQ     10$                     ;BR IF NOT.
                                        PRINTF  #PUNIT,UNITN            ;PRINT THE UNIT #
                                        MOV     UNITN,-(SP)
                                        MOV     #PUNIT,-(SP)
                                        MOV     #2,-(SP)
                                        MOV     SP,R0
                                        TRAP    C$PNTF
                                        ADD     #6,SP
                                10$:
                                        CLR     NODEV
                                        MOV     CSRADDR,R1              ;ADDRESS OF FIRST REGISTER
                                        MOV     R1,R2                   ;START OF REGISTERS
                                        ADD     #TSSR,R2                ;ADDRESS OF TSSR REGISTER
                                        JSR     PC,XNXM                 ;TEST BOTH CONTROLLER REGISTERS...
                                        BCC     2$                      ;...AND BR IF ALL OK.
                                        MOV     R1,NODEV                ;FLAG DEVICE AS NON-EXISTENT
                                        MOV     #-1,DUFLG               ;DROP THIS UNIT.
                                2$:
                                ;
                                ;FINALLY, SET CPU PRIORITY AND WE'RE DONE.
                                ;
                                5$:     SETPRI  #PRI00          ;ENABLE INTERRUPTS.
                                        MOV     #PRI00,R0
                                        TRAP    C$SPRI
                                        ENDINIT
                                L10030:
                                        TRAP    C$INIT

                                PUNIT:  .ASCIZ  /%N%N%A***** TESTING UNIT %D2%A *****/
                                        .EVEN
```

ADD AND DROP UNITS SECTIONS

```
                                        .SBTTL  ADD AND DROP UNITS SECTIONS

                                ;++
                                ; THE ADD-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
                                ; TO BE (A) ADDED TO THE TEST LIST FOR THE FIRST TIME,
                                ;    OR (B) RE-INSERTED IF IT HAD BEEN PREVIOUSLY DROPPED.
                                ;--
023262                                  BGNAU
023262                          L$AU::
023262  010001                          MOV     R0,R1                   ; GET UNIT TO BE ADDED (R0)
023264  006301                          ASL     R1                      ; MAKE IT A WORD INDEX
023266  052761  100000  003166          BIS     #100000,ERTABL(R1)      ; SET THE "ACTIVE" BIT
023274  042761  040000  003166          BIC     #40000,ERTABL(R1)       ; CLEAR THE "DROPPED" BIT
023302                                  PRINTF  #1$,R0
023302  010046                          MOV     R0,-(SP)
023304  012746  023330                  MOV     #1$,-(SP)
023310  012746  000002                  MOV     #2,-(SP)
023314  010600                          MOV     SP,R0
023316  104417                          TRAP    C$PNTF
023320  062706  000006                  ADD     #6,SP
023324                                  EXIT    AU
023324  000167                          .WORD   J$JMP
023326  000026                          .WORD   L10031-2-.
023330     045     116     045  1$:     .ASCIZ  /%N%A  UNIT %D%A ADDED/
                                        .EVEN

023356                                  ENDAU           ; UNUSED.
023356                          L10031:
023356  104452                          TRAP    C$AU

                                ;++
                                ; THE DROP-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
                                ; TO BE REMOVED FROM THE TEST LIST.
                                ;
                                ; SUPVSR DOES THE "DROPPING".  THIS IS JUST TO TELL THE MAN.
                                ; "DROPPED" UNITS ARE RE-SELECTED ON OPERATOR "STA" OR "ADD"
                                ; COMMAND, OTHERWISE REMAIN INACTIVE.  THE "DISPLAY" COMMAND
                                ; WILL PRINT ALL DROPPED UNITS, AND THE P-TABLES OF THOSE
                                ; WHICH ARE STILL ACTIVE.
                                ; UPON ENTRY, R0 CONTAINS THE UNIT TO BE DROPPED.

023360                                  BGNDU
023360                          L$DU::
023360  012737  177777  003102          MOV     #-1,DUFLG
023366  010001                          MOV     R0,R1
023370  006301                          ASL     R1
023372  052761  140000  003166          BIS     #140000,ERTABL(R1)      ; SAY DROPPED
023400  000240  000240  000240          240,240,240                     ; ?????????
023406                                  PRINTF  #1$,R0
023406  010046                          MOV     R0,-(SP)
023410  012746  023434                  MOV     #1$,-(SP)
023414  012746  000002                  MOV     #2,-(SP)
023420  010600                          MOV     SP,R0
023422  104417                          TRAP    C$PNTF
023424  062706  000006                  ADD     #6,SP
023430                                  EXIT    DU
023430  000167                          .WORD   J$JMP
023432  000030                          .WORD   L10032-2-.
```

ADD AND DROP UNITS SECTIONS

```
4007 023434      045     116     045 1$:     .ASCIZ  /%N%A  UNIT %D%A DROPPED/
4008                                 .EVEN
4009 023464                          ENDDU
     023464                     L10032:
     023464  104453                       TRAP    C$DU
4010                                 ;++
4011                                 ; AUTO-DROP CODE SECTION.
4012                                 ;--
4013 023466                          BGNAUTO
     023466                     L$AUTO::
4014 023466  013705  002176             MOV     CSRADDR,R5          ;POINT TO DEVICE REGISTER
4015 023472  012703  000550             MOV     #360.,R3            ;ENOUGH TIME FOR 2400' REEL TO REWIND
4016 023476  004737  016340        10$: JSR     PC,WAITF            ;WAIT FOR SSR TO SET
4017 023502  103420                     BCS     20$                 ;LEAVE WHEN SSR IS SET
4018 023504                             DELAY   250.                ;WAIT FOR .25 SECONDS
     023504  012727  000372             MOV     #250.,(PC)+
     023510  000000                     .WORD   0
     023512  013727  002116             MOV     L$DLY,(PC)+
     023516  000000                     .WORD   0
     023520  005367  177772             DEC     -6(PC)
     023524  001375                     BNE     .-4
     023526  005367  177756             DEC     -22(PC)
     023532  001367                     BNE     .-20
4019 023534  005303                     DEC     R3                  ;BUMP COUNTER DOWN
4020 023536  001357                     BNE     10$                 ;KEEP GOING
4021 023540  004737  017272             JSR     PC,CKDROP           ;TRY AND DROP UNIT
4022 023544                         20$:
4023 023544                             ENDAUTO                 ; UNUSED.
     023544                     L10033:
     023544  104461                     TRAP    C$AUTO
```

CLEAN-UP AND REPORT CODING SECTIONS

```
                                        .SBTTL  CLEAN-UP AND REPORT CODING SECTIONS

                                ;**
                                ; THE CLEANUP CODING SECTION CONTAINS THE CODING THAT IS
                                ; EXECUTED AT THE END OF EACH PASS (OR SUB-PASS).
                                ; USE TO RETURN DEVICE UNDER TEST TO A NEUTRAL STATE.
                                ;--
023546                                  BGNCLN
023546                          L$CLEAN::
023546  013705  002176                  MOV     CSRADDR,R5              ;POINT TO DEVICE REGISTER
023552  005737  003102                  TST     DUFLG           ;"DROPPED" FLAG IS SET ON...
023556  100405                          BMI     1$              ;...AND GROSS CONTROLLER FAULT...
                                                                ;...DON'T TRY TO XCT CLEANUP CODE.

023560  012765  000000  000002          MOV     #0,TSSR(R5)     ;DO SOFT INIT
023566  004737  016340                  JSR     PC,WAITF
023572                          1$:
023572                          2$:     ENDCLN
023572                          L10034:
023572  104412                          TRAP    C$CLEAN

                                ;**
                                ; THE REPORT CODING SECTION CONTAINS THE
                                ; "PRINTS" CALLS THAT GENERATE STATISTICAL REPORTS.
                                ;--
023574                                  BGNRPT
023574                          L$RPT::
023574                                  PRINTS  #DEVSUM
023574  012746  024036                  MOV     #DEVSUM,-(SP)
023600  012746  000001                  MOV     #1,-(SP)
023604  010600                          MOV     SP,R0
023606  104416                          TRAP    C$PNTS
023610  062706  000004                  ADD     #4,SP
023614  010246                          MOV     R2,-(SP)
023616  010346                          MOV     R3,-(SP)
023620  010446                          MOV     R4,-(SP)
023622  012704  003166                  MOV     #ERTABL,R4      ; GET START OF ERROR TABLE.
023626  005003                          CLR     R3              ; CLEAR UNIT NUMBER
023630  011402                  1$:     MOV     (R4),R2         ; GET ERROR TABLE ENTRY & TEST IT.
023632  001467                          BEQ     4$              ; ZERO IF UNIT NOT RUN
023634  100066                          BPL     4$
023636  032702  040000                  BIT     #BIT14,R2       ; WAS UNIT DROPPED?
023642  001015                          BNE     2$              ; BR IF YES
023644  042702  170000                  BIC     #^C7777,R2      ; GET ERROR COUNT FIELD
023650                                  PRINTS  #DEVONL,R3,R2   ; PRINT
023650  010246                          MOV     R2,-(SP)
023652  010346                          MOV     R3,-(SP)
023654  012746  024073                  MOV     #DEVONL,-(SP)
023660  012746  000003                  MOV     #3,-(SP)
023664  010600                          MOV     SP,R0
023666  104416                          TRAP    C$PNTS
023670  062706  000010                  ADD     #10,SP
023674  000446                          BR      4$
023676  020227  160000          2$:     CMP     R2,#160000      ; WAS UNIT NON-EXISTENT?
023702  001012                          BNE     3$              ; BR IF NO
023704                                  PRINTS  #DEVNXR,R3
023704  010346                          MOV     R3,-(SP)
023706  012746  024143                  MOV     #DEVNXR,-(SP)
```

CLEAN-UP AND REPORT CODING SECTIONS

```
                023712  012746  000002                  MOV     #2,-(SP)
                023716  010600                          MOV     SP,R0
                023720  104416                          TRAP    C$PNTS
                023722  062706  000006                  ADD     #6,SP
        4064    023726  000431                          BR      4$
        4065    023730  020227  160001          3$:     CMP     R2,#160001      ; WAS UNIT NOT READY AT STARTUP?
        4066    023734  001012                          BNE     30$             ; BR IF NO.
        4067    023736                          
                023736  010346                          PRINTS  #DEVNRD,R3
                023740  012746  024225                  MOV     R3,-(SP)
                023744  012746  000002                  MOV     #DEVNRD,-(SP)
                023750  010600                          MOV     #2,-(SP)
                023752  104416                          MOV     SP,R0
                023754  062706  000006                  TRAP    C$PNTS
        4068    023760  000414                          ADD     #6,SP
        4069    023762  042702  170000          30$:    BR      4$
        4070    023766                          
                023766  010246                          BIC     #^C7777,R2
                023770  010346                          PRINTS  #DEVDRO,R3,R2
                023772  012746  024306                  MOV     R2,-(SP)
                023776  012746  000003                  MOV     R3,-(SP)
                024002  010600                          MOV     #DEVDRO,-(SP)
                024004  104416                          MOV     #3,-(SP)
                024006  062706  000010                  MOV     SP,R0
        4071    024012  062704  000002          4$:     TRAP    C$PNTS
        4072    024016  005203                          ADD     #10,SP
        4073    024020  020427  003366                  ADD     #2,R4
        4074    024024  103701                          INC     R3
        4075    024026  012604                          CMP     R4,#ERTABE
        4076    024030  012603                          BLO     1$
        4077    024032  012602                          MOV     (SP)+,R4
        4078    024034                                  MOV     (SP)+,R3
                024034                                  MOV     (SP)+,R2
                024034  104425          L10035:         ENDRPT          ; UNUSED.
        4079                                    
        4080    024036      045     116     045 DEVSUM: TRAP    C$RPT
        4081    024073      045     101     040 DEVONL: .ASCIZ  /%N%ADEVICE STATUS SUMMARY:%N/
        4082    024143      045     101     040 DEVNXR: .ASCIZ  /%A  UNIT %D3%A    ONLINE,  ERRORS = %D%N/
        4083    024225      045     101     040 DEVNRD: .ASCIZ  /%A  UNIT %D3%A    DROPPED, NON-EXISTENT REGISTER%N/
        4084    024306      045     101     040 DEVDRO: .ASCIZ  /%A  UNIT %D3%A    DROPPED, NOT READY AT STARTUP%N/
        4085                                    .EVEN   .ASCIZ  /%A  UNIT %D3%A    DROPPED, ERRORS = %D%N/
        4086                                    
        4087    024356                          ENDMOD
        4088
```

CLEAN-UP AND REPORT CODING SECTIONS

```
                                        .TITLE  TSV7 - HARDWARE TESTS 1-8
                                        BGNMOD  TSV7
                                TSV7::
                                        .SBTTL  TEST  1: INITIALIZE 84 TEST
                                ;+
                                ;
                                ;THIS TEST VERIFIES THAT WRITING INTO THE TSSR RETURNS THE
                                ;CONTROLLER TO ITS INITIALIZED STATE FROM VARIOUS CONDITIONS
                                ;(I.E. LOOPBACK ENABLED, FORCING WRONG PARITY, INVERTING SENSE OF
                                ;EXTENDED FEATURES SWITCH, ETC.)
                                ;
                                ;-
                                        BGNTST
                                                                                T1::
024356 C12737  006356  002170           MOV     #EPRT1,EPRTSW           ;SET UP PRIMARY ERROR MESSAGE
                                ;
                                ;
                                ;TEST 1
                                ;
                                ;
                                ;-
024364 004737  016274                   JSR     PC,DS8INT               ;DISABLE INTERRUPTS
024370 012700  025314                   MOV     #TST21ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
024374 004737  016600                   JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
024400 012737  000005  002206           MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
024406                          T21LOOP:
024406 004737  025336                   JSR     PC,T21REST              ;SET COMMAND PACKET
024412 004737  025426                   JSR     PC,T21RT2               ;SET UP OTHER COMMAND PACKET
                                ;*******************************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                ;
                                ;*******************************************************************************
024416 012737  176750  024772           MOV     #65000.,T21DLY          ;SET DELAY ROUTINE
024424 004737  016064           11$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
024430 103426                           BCS     20$                     ;BR IF INIT WAS OK
024432                                  DELAY   250                     ;DELAY FOR A REWIND TO FINISM
                                                                                MOV     #250.,(PC)+
024432 012727  000250                                                           .WORD   0
024436 000000                                                                   MOV     L$DLY,(PC)+
024440 013727  0u2116                                                           .WORD   0
024444 000000                                                                   DEC     -6(PC)
024446 005367  177772                                                           BNE     .-4
024452 001375                                                                   DEC     -22(PC)
024454 005367  177756                                                           BNE     .-20
024460 001367
024462 005337  024772                   DEC     T21DLY                  ;BUMP COUNTER DOWN
024466 001356                           BNE     11$                     ;BR, IF MORE TIME TO GO
024470 005237  002212                   INC     FATFLG                  ;BUMP COUNT
024474 010001                           MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
```

```
TEST  1: INITIALIZE #4 TEST

4164 024476                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     024476  104455                                                          TRAP    C$ERDF
     024500  000145                                                          .WORD   101
     024502  003650                                                          .WORD   SFIERR
     024504  012124                                                          .WORD   SFIMSG
4165 024506                     20$:
4166 024506  012704  024750             MOV     #T21PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4167
4168                            ;*************************************************************************
4169                            ;
4170                            ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4171                            ;
4172                            ;*************************************************************************
4173
4174 024512  013737  002172  024770     MOV     UNITN,T21DSW            ;SET UP DRIVE NUMBER
4175 024520  004737  010752             JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4176 024524  103407                     BCS     23$                     ;BR, IF COMMAND ISSUED OK
4177 024526  005237  002212             INC     FATFLG                  ;BUMP COUNT
4181 024532  C10001                     MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4182 024534                             ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     024534  104456                                                          TRAP    C$ERHRD
     024536  000146                                                          .WORD   102
     024540  005054                                                          .WORD   WRTMSG
     024542  012124                                                          .WORD   SFIMSG
4183 024544                     23$:    CKLOOP                                  TRAP    C$CLP1
     024544  104406
4184 024546  112737  000200  025070     MOVB    #200,T21BS0             ;WRITE MISCELLANEOUS CONT/READ STATUS
4185 024554  112737  000010  025071     MOVB    #10,T21BS1              ;FUNCTION SELECTION BIT
4186 024562                     25$:
4187 024562  012704  025060             MOV     #T21PK2,R4              ;WRITE SUBSYS MEM PACKET
4188 024566  010465  000000             MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4189 024572  004737  016426             JSR     PC,CHKTSSR              ;WAIT FOR SSR
4190 024576  103407                     BCS     30$                     ;BR, IF NO ERROR
4191 024600  010001                     MOV     R0,R1                   ;ERROR, SAVE TSSR
4192 024602  005237  002212             INC     FATFLG                  ;BUMP COUNT
4196 024606                             ERRHRD  ERRNO,T21SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
     024606  104456                                                          TRAP    C$ERHRD
     024610  000147                                                          .WORD   103
     024612  025076                                                          .WORD   T21SSR
     024614  012136                                                          .WORD   PKTSSR
4197 024616                     30$:    CKLOOP                          ;SCOPE LOOP
     024616  104406                                                          TRAP    C$CLP1
4198 024620  012765  000000  000002     MOV     #0,TSSR(R5)             ;ISSUE A SOFT INITIALIZE
4199 024626  004737  016340             JSR     PC,WAITF                ;WAIT FOR JUST THE SSR BIT TO SET
4200 024632  016501  000002             MOV     TSSR(R5),R1             ;READ THE TSSR BACK
4201 024636  010102                     MOV     R1,R2                   ;WORK REGISTER
4202 024640  042702  176377             BIC     #^C<HIADDR>,R2          ;CLEAR OUT OTHER BITS
4203 024644  052702  002200             BIS     #SSR!NBA,R2             ;SOME OF THE BITS THAT SHOULD BE SET
4204 024650  032701  000100             BIT     #OFL,R1                 ;IS OFF LINE BIT SET
4205 024654  001012                     BNE     38$                     ;BR, IF DRIVE IS OFF LINE
4206 024656  020102             35$:    CMP     R1,R2                   ;EXPECTED (R2) = RECEIVED (R1)
4207 024660  001406                     BEQ     37$                     ;BR, IF THEY ARE EQUAL (OK)
4208 024662  005237  002212             INC     FATFLG                  ;BUMP COUNT
4212 024666                             ERRHRD  ERRNO,T21AM3,EXPREC     ;"ERROR TRYING TO INIT AFTER WRITE MISC.
     024666  104456                                                          TRAP    C$ERHRD
     024670  000150                                                          .WORD   104
     024672  025173                                                          .WORD   T21AM3
```

```
     024674  015564                                                                  .WORD   EXPREC
     024676                          37$:    CKLOOP                  ;LOOP IF SELECTED
     024676  104406                                                                  TRAP    C$CLP1
     024700  000406                          BR      40$             ;SKIP OVER OFF-LINE STUFF
     024702                          38$:
     024702                                  ERRDF   ERRNO,T21OFL,EXPREC     ;DRIVE IS OFF LINE
     024702  104455                                                                  TRAP    C$ERDF
     024704  000151                                                                  .WORD   105
     024706  025273                                                                  .WORD   T21OFL
     024710  015564                                                                  .WORD   EXPREC
     024712  004737  017272                  JSR     PC,CKDROP       ;TRY AND DROP UNIT
     024716  000241                  40$:    CLC                     ;DON'T LET CARRY SNEAK IN
     024720  106037  025071                  RORB    T21BS1          ;TRY NEXT "LOWEST" BIT POSITION
     024724  001316                          BNE     25$             ;LOOP UNTIL ALL EIGHT BITS TESTED
     024726                          50$:    CKLOOP                  ;SCOPE LOOP
     024726  104406                                                                  TRAP    C$CLP1
     024730  004737  016546                  JSR     PC,TSTLOOP      ;DO WE NEED TO ITERATE TEST
     024734  103002                          BCC     63$             ;BR, IF NO LOOP REQUIRED
     024736  C00137  024406                  JMP     T21LOOP         ;EXECUTE AGAIN
     024742                          63$:    EXIT    TST             ;ALL DONE THIS TEST
     024742  104432                                                                  TRAP    C$EXIT
     024744  000524                                                                  .WORD   L10036-.

                                     ;+
                                     ;LOCAL STORAGE FOR THIS TEST
                                     ;-
     024746                                  .BLKB   10-<.-TSV2&7>
     024750                          T21PACKET:                      ;COMMAND PACKET FOR TEST
     024750  100004                          .WORD   100004          ;WRITE CHARACTERISTICS COMMAND, WITH, ACK
     024752  024760                          .WORD   T21DATA         ;ADDRESS OF CHARACTERISTICS BLOCK
     024754  000000                          .WORD   0
     024756  000012                          .WORD   10.             ;STARTING VALUE OF BLOCK SIZE
     024760                          T21DATA:                        ;CHARACTERISTICS DATA BLOCK
     024760  024774                          .WORD   T21BFR          ;ADDRESS OF MESSAGE BUFFER
     024762  000000                          .WORD   0
     024764  000024                          .WORD   20.             ;LENGTH OF MESSAGE BUFFER
     024766  000000                          .WORD   0
     024770  000000                  T21DSW: .WORD   0               ;DRIVE SELECT WORD
     024772  000000                  T21DLY: .WORD   0               ;DELAY COUNTER
     024774                          T21BFR: .BLKW   25.             ;MESSAGE BUFFER
                                     ;
                                     ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
                                     ;
     025056                                  .BLKB   10-<.-TSV2&7>
     025060                          T21PK2:
     025060  100206                          .WORD   100206          ;WRITE SUB SYS MEM COMMAND, IE AND ACK
     025062  025070                          .WORD   T21BF2          ;ADDRESS OF SELECT BLOCK DATA
     025064  000000                          .WORD   0
     025066  000006                          .WORD   6.              ;SIZE OF DATA PACKET

                                             .EVEN
     025070                          T21BF2:
     025070     000                  T21BS0: .BYTE   0               ;BSEL0 AREA --- "COMMAND" BYTE
     025071     000                  T21BS1: .BYTE   0               ;BSEL1 AREA
     025072  000000                  T21S2:  .WORD   0               ;SEL 2 AREA
     025074  000000                  T21S3:  .WORD   0               ;DATA AREA
```

TEST  1: INITIALIZE #4 TEST

```
4268
4269                                    ;+
4270                                    ;LOCAL TEXT MESSAGES FOR TEST
4271                                    ;-
4272
4273 025076     127     122     111    T21SSR: .ASCIZ  'WRITE MISCELLANEOUS CONTROL/READ STATUS Command Not Accepted'
4274 025173     124     123     123    T21AM3: .ASCIZ  'TSSR Init. Failed After WRITE MISCELLANEOUS CONRTOL/READ STATUS'
4275 025273     104     162     151    T21OFL: .ASCIZ  'Drive is OFFLINE'
4276 025314     111     156     151    TST21ID:        .ASCIZ  'Initialization #4'
4277                                            .EVEN
4278                                    ;+
4279                                    ;
4280                                    ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
4281                                    ;WRITE SUBSYSTEM MEMORY COMMAND
4282                                    ;
4283                                    ;-
4284
4285 025336                             T21REST:
4286 025336                                     SAVREG                          ;SAVE THE REGISTERS
4287 025342  012701  024750                     MOV     #T21PACKET,R1           ;START OF THE PACKET
4288 025346  012721  100004                     MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
4289 025352  012721  024760                     MOV     #T21DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
4290 025356  005021                             CLR     (R1)+                   ;EXTENDED ADDRESS
4291 025360  012721  000010                     MOV     #8.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
4292 025364  012721  024774                     MOV     #T21BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
4293 025370  005021                             CLR     (R1)+
4294 025372  012721  000024                     MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
4295 025376  005021                             CLR     (R1)+
4296 025400  005011                             CLR     (R1)
4297 025402  012702  000020                     MOV     #20,R2                  ;NUMBER OF LOCATIONS TO BE CLEARED
4298 025406  012762  177777  024774  64$:      MOV     #177777,T21BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
4299 025414  005742                             TST     -(R2)                   ;NEXT LOCATION
4300 025416  020227  000000                     CMP     R2,#0                   ;CHECK R2 FOR ZERO
4301 025422  001371                             BNE     64$                     ;BR, IF NOT AT ZERO YET
4302 025424  000207                             RTS     PC                      ;RETURN
4303
4304
4305 025426                             T21RT2:
4306 025426                                     SAVREG                          ;SAVE THE REGISTERS
4307 025432  012701  025060                     MOV     #T21PK2,R1              ;START OF THE PACKET
4308 025436  012721  100206                     MOV     #100206,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK, IE
4309 025442  012721  025070                     MOV     #T21BF2,(R1)+           ;ADDRESS OF DATA BLOCK
4310 025446  005021                             CLR     (R1)+                   ;EXTENDED ADDRESS
4311 025450  012721  000006                     MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
4312 025454  005021                             CLR     (R1)+
4313 025456  012701  025070                     MOV     #T21BF2,R1              ;ADDRESS OF DATA FOR WRT SUB SYS MEM
4314 025462  005021                             CLR     (R1)+
4315 025464  005011                             CLR     (R1)
4316 025466  000207                             RTS     PC                      ;RETURN
4317 025470                                     ENDTST
     025470                                                             L10036:
     025470  104401                                                             TRAP    C$ETST
4318
4319                                            .SBTTL  TEST  2: OFF-LINE AND REJECT REWIND
4320                                    ;+
4321                                    ;
4322                                    ;THIS TEST VERIFIES BASIC TAPE-MOTION COMMAND DECODING AND BASIC
```

TEST  2: OFF-LINE AND REJECT REWIND

```
                                        ;OPERATION OF THE REWIND POSITIONING COMMAND. IT DOES NOT
                                        ;NECESSARILY DEMONSTRATE THAT THE TRANSPORT CAN BE REWOUND FROM AN
                                        ;ARBITRARY POSITION ON THE TAPE. SUBSEQUENT TESTS IMPLICITLY
                                        ;CHECK THE OPERATION OF THE REWIND COMMAND SINCE THEY MUST
                                        ;TYPICALLY REWIND THE TAPE IN THE NORMAL COURSE OF THEIR TEST
                                        ;SEQUENCES. THE TEST CONSISTS OF THE FOLLOWING THREE SUBTESTS
                                        ;
                                        ;
                                        ;-
025472                                          BGNTST
025472                                                                                  T2::
025472  012737  006356  002170                MOV     #EPRT1,EPRTSW           ;SET UP PRIMARY ERROR MESSAGE
025500  004737  016274                        JSR     PC,DSBINT               ;DISABLE INTERRUPTS
025504  012700  027757                        MOV     #TST22ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
025510  004737  016600                        JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
025514  012737  000005  002206                MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
                                        ;*
                                        ;
                                        ;TEST 2, SUBTEST 1
                                        ;
                                        ;VERIFIES THAT ALL TAPE-MOTION COMMANDS (WITH VALID
                                        ;MODE CODES) TERMINATE WITH FUNCTION REJECT AND
                                        ;OFF-LINE STATUS WHEN THE TAPE TRANSPORT IS OFF-LINE.
                                        ;THE SUBTEST OPERATES BY PLACING THE CONTROLLER INTO
                                        ;EXTENDED MODE, SELECTING UNIT 7, AND ISSUING EACH
                                        ;TAPE-MOTION COMMAND, CHECKING, AFTER EACH COMMAND,
                                        ;THAT FUNCTION REJECT TERMINATION WAS ACCOMPLISHED.
                                        ;-

025522                                  T22LOOP:
025522                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
025522                                                                                  T2.1:
025522  104402                                                                          TRAP    C$BSUB
025524  004737  030012                        JSR     PC,T22REST              ;SET COMMAND PACKET
025530  004737  030104                        JSR     PC,T22RT2               ;SET UP OTHER COMMAND PACKET

                                        ;*************************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*************************************************************************

025534  004737  016064                        JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
025540  103407                                BCS     20$                     ;BR IF INIT WAS OK
025542  005237  002212                        INC     FATFLG                  ;BUMP COUNT
025546  010001                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
025550                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
025550  104455                                                                          TRAP    C$ERDF
025552  000311                                                                          .WORD   201
025554  003650                                                                          .WORD   SFIERR
025556  012124                                                                          .WORD   SFIMSG
025560                                  20$:
025560  012704  027040                        MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*************************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
```

TEST 2: OFF-LINE AND REJECT REWIND

```
4380                                    ;
4381                                    ;*************************************************************************
4382
4383 025564  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4384 025570  103407                            BCS     23$                     ;BR, IF COMMAND ISSUED OK
4385 025572  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4389 025576  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4390 025600                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      025600  104456                                                                    TRAP    C$ERHRD
      025602  000312                                                                    .WORD   202
      025604  005054                                                                    .WORD   WRTMSG
      025606  012124                                                                    .WORD   SFIMSG
4391 025610                             23$:    CKLOOP                                  TRAP    C$CLP1
      025610  104406
4392 025612  013701  027070                    MOV     T22BFR+6,R1             ;PICK UP XTS0
4393 025616  032701  000004                    BIT     #4,R1                   ;IS UNIT WRITE-LOCKED?
4394 025622  001407                            BEQ     24$                     ;NO,PROCEED WITH TESTING
4395 025624  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4399 025630                                    ERRDF   ERRNO,T22WLK,SFIMSG     ;TAPE IS WRITE LOCKED
      025630  104455                                                                    TRAP    C$ERDF
      025632  000313                                                                    .WORD   203
      025634  027672                                                                    .WORD   T22WLK
      025636  012124                                                                    .WORD   SFIMSG
4400 025640                                    DOCLN                                   TRAP    C$DCLN
      025640  104444
4401 025642                             24$:    CKLOOP                                  TRAP    C$CLP1
      025642  104406
4402 025644  005737  002216                    TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
4403 025650  001041                            BNE     50$                     ;BR IF SWITCH IS ON
4404 025652  112737  000200  027161            MOVB    #200,T22BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
4405 025660  112737  000010  027160            MOVB    #10,T22BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
4406 025666  012704  027150                    MOV     #T22PK2,R4              ;WRITE SUBSYS MEM PACKET
4407 025672  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4408 025676  004737  016426                    JSR     PC,CHKTSSR              ;WAIT FOR SSR
4409 025702  103407                            BCS     30$                     ;BR, IF NO ERROR
4410 025704  010001                            MOV     R0,R1                   ;ERROR, SAVE TSSR
4411 025706  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4415 025712                                    ERRHRD  ERRNO,T22SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
      025712  104456                                                                    TRAP    C$ERHRD
      025714  000314                                                                    .WORD   204
      025716  027200                                                                    .WORD   T22SSR
      025720  012136                                                                    .WORD   PKTSSR
4416 025722                             30$:    CKLOOP                          ;LOOP IF SELECTED
      025722  104406                                                                    TRAP    C$CLP1
4417 025724  012704  027040                    MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4418
4419                                    ;*************************************************************************
4420                                    ;
4421                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4422                                    ;
4423                                    ;*************************************************************************
4424
4425 025730  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4426 025734  103407                            BCS     50$                     ;BR, IF COMMAND ISSUED OK
4427 025736  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4431 025742  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4432 025744                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
```

TEST 2: OFF-LINE AND REJECT REWIND

```
        025744  104456                                                          TRAP    C$ERHRD
        025746  000315                                                          .WORD   205
        025750  005054                                                          .WORD   WRTMSG
        025752  012124                                                          .WORD   SFIMSG
4433    025754                          50$:    CKLOOP                          ;SCOPE LOOP
        025754  104406                                                          TRAP    C$CLP1
4434    025756  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4435    025762  032701  000100                  BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
4436    025766  001006                          BNE     60$                     ;BR, IF OFFLINE (GOOD)
4437    025770  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4441    025774                                  ERRDF   ERRNO,T22OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
        025774  104455                                                          TRAP    C$ERDF
        025776  000316                                                          .WORD   206
        026000  027375                                                          .WORD   T22OFL
        026002  012124                                                          .WORD   SFIMSG
4442    026004                          60$:    CKLOOP                          ;LOOP IF SELECTED
        026004  104406                                                          TRAP    C$CLP1
4443    026006  012703  027166                  MOV     #T22RD,R3               ;POINTER FOR COMMANDS
4444    026012  011337  027150          65$:    MOV     (R3),T22PK2             ;TAPE MOTION COMMAND IN PLACE
4445    026016  012704  027150                  MOV     #T22PK2,R4              ;R4 = POINTER TO PACKET
4446    026022  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4447    026026  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4448    026032  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4449    026036  012702  100306                  MOV     #SSR!SC!OFL!BIT1!BIT2,R2;SET UP EXPECTED
4450    026042  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4451    026044  001406                          BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
4452    026046  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4456    026052                                  ERRHRD  ERRNO,T22TM,EXPREC      ;TSSR INCORRECT AFTER TAPE MOTION CMD
        026052  104456                                                          TRAP    C$ERHRD
        026054  000317                                                          .WORD   207
        026056  027450                                                          .WORD   T22TM
        026060  015564                                                          .WORD   EXPREC
4457    026062                          80$:    CKLOOP                          ;LOOP IF SELECTED
        026062  104406                                                          TRAP    C$CLP1
4458    026064  005723                          TST     (R3)+                   ;POINT TO NEXT COMMAND
4459    026066  022713  177777                  CMP     #177777,(R3)            ;END OF THE COMMANDS YET
4460    026072  001401                          BEQ     90$                     ;BR, IF DONE
4461    026074  000746                          BR      65$                     ;MORE COMMAND(S) TO GO
4462    026076                          90$:
4463    026076                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        026076                                                                          L10040:
        026076  104403                                                          TRAP    C$ESUB
4464    026100  023727  002212  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
4465    026106  103402                                  BLO     999$                    ;BR, IF LESS THAN 25
4466    026110  004737  017272                          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
4467    026114                          999$:
4468
4469                                    ;+
4470                                    ;
4471                                    ;TEST 2, SUBTEST 2
4472                                    ;
4473                                    ;VERIFIES THAT A REWIND COMMAND, WITH THE CLEAR VOLUME
4474                                    ;CHECK (CVC) BIT CLEAR, IS REJECTED IF THE VOLUME CHECK
4475                                    ;(VCK) FLAG IS SET.
4476                                    ;
4477                                    ;
4478                                    ;-
```

```
026114                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
026114                                                                                  T2.2:
026114  104402                                                                                  TRAP    C$BSUB
026116  004737  030012                  JSR     PC,T22REST              ;SET COMMAND PACKET
026122  004737  030104                  JSR     PC,T22RT2               ;SET UP OTHER COMMAND PACKET

                                ;*****************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                ;
                                ;*****************************************************************

026126  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
026132  103407                          BCS     20$                     ;BR IF INIT WAS OK
026134  005237  002212                  INC     FATFLG                  ;BUMP COUNT
026140  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
026142                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
026142  104455                                                                                  TRAP    C$ERDF
026144  C00320                                                                                  .WORD   208
026146  003650                                                                                  .WORD   SFIERR
026150  012124                                                                                  .WORD   SFIMSG
026152                          20$:
026152  012704  027040                  MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                ;*****************************************************************
                                ;
                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                ;
                                ;*****************************************************************

026156  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
026162  103407                          BCS     23$                     ;BR, IF COMMAND ISSUED OK
026164  005237  002212                  INC     FATFLG                  ;BUMP COUNT
026170  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
026172                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
026172  104456                                                                                  TRAP    C$ERHRD
026174  000321                                                                                  .WORD   209
026176  005054                                                                                  .WORD   WRTMSG
026200  012124                                                                                  .WORD   SFIMSG
026202  005737  002216          23$:    TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
026206  001041                          BNE     50$                     ;BR IF SWITCH IS ON

026210  112737  000200  027161          MOVB    #200,T22BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
026216  112737  000010  027160          MOVB    #10,T22BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
026224  012704  027150                  MOV     #T22PK2,R4              ;WRITE SUBSYS MEM PACKET
026230  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
026234  004737  016426                  JSR     PC,CHKTSSR              ;WAIT FOR SSR
026240  103407                          BCS     30$                     ;BR, IF NO ERROR
026242  010001                          MOV     R0,R1                   ;ERROR, SAVE TSSR
026244  005237  002212                  INC     FATFLG                  ;BUMP COUNT
026250                                  ERRHRD  ERRNO,T22SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
026250  104456                                                                                  TRAP    C$ERHRD
026252  000322                                                                                  .WORD   210
026254  027200                                                                                  .WORD   T22SSR
026256  012136                                                                                  .WORD   PKTSSR
026260                          30$:    CKLOOP                          ;LOOP IF SELECTED
026260  104406                                                                                  TRAP    C$CLP1
```

TEST 2: OFF-LINE AND REJECT REWIND

```
4530 026262  012704  027040                MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4531
4532                                ;*************************************************************************
4533                                ;
4534                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4535                                ;
4536                                ;*************************************************************************
4537
4538 026266  004737  010752                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4539 026272  103407                        BCS     50$                     ;BR, IF COMMAND ISSUED OK
4540 026274  005237  002212                INC     FATFLG                  ;BUMP COUNT
4544 026300  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4545 026302                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     026302  104456                                                                TRAP    C$ERHRD
     026304  000323                                                                .WORD   211
     026306  005054                                                                .WORD   WRTMSG
     026310  012124                                                                .WORD   SFIMSG
4546 026312                        50$:    CKLOOP                          ;SCOPE LOOP
     026312  104406                                                                TRAP    C$CLP1
4547 026314  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4548 026320  032701  000100                BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
4549 026324  001006                        BNE     60$                     ;BR, IF OFFLINE (GOOD)
4550 026326  005237  002212                INC     FATFLG                  ;BUMP COUNT
4554 026332                                ERRDF   ERRNO,T22OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
     026332  104455                                                                TRAP    C$ERDF
     026334  000324                                                                .WORD   212
     026336  027375                                                                .WORD   T22OFL
     026340  012124                                                                .WORD   SFIMSG
4555 026342                        60$:    CKLOOP                          ;LOOP IF SELECTED
     026342  104406                                                                TRAP    C$CLP1
4556 026344  012737  102210  027150  65$:    MOV     #102210,T22PK2          ;POSITION COMMAND (REWIND MODE)
4557 026352  012704  027150                MOV     #T22PK2,R4              ;R4 = POINTER TO PACKET
4558 026356  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4559 026362  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4560 026366  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4561 026372  012702  100306                MOV     #SSR!SC!OFL!BIT1!BIT2,R2;SET UP EXPECTED
4562 026376  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
4563 026400  001406                        BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
4564 026402  005237  002212                INC     FATFLG                  ;BUMP COUNT
4568 026406                                ERRHRD  ERRNO,T22RWJ,EXPREC     ;TSSR INCORRECT AFTER TAPE MOTION CMD
     026406  104456                                                                TRAP    C$ERHRD
     026410  000325                                                                .WORD   213
     026412  027544                                                                .WORD   T22RWJ
     026414  015564                                                                .WORD   EXPREC
4569 026416                        80$:    CKLOOP                          ;LOOP IF SELECTED
     026416  104406                                                                TRAP    C$CLP1
4570 026420                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     026420                                                                L10041:
     026420  104403                                                                TRAP    C$ESUB
4571 026422  023727  002212  000017                CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
4572 026430  103402                                BLO     999$                    ;BR, IF LESS THAN 25
4573 026432  004737  017272                        JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
4574 026436                        999$:
4575
4576                                ;*
4577                                ;
4578                                ;TEST 2, SUBTEST 3
```

TEST 2: OFF-LINE AND REJECT REWIND

```
4579                                    ;
4580                                    ;VERIFIES THAT A REWIND COMMAND WITH CVC=1 CLEARS VCK
4581                                    ;AND RETURNS PROPER STATUS IN THE MESSAGE BUFFER.
4582                                    ;
4583                                    ;
4584                                    ;-
4585 026436                             BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
      026436                                                                  T2.3:
      026436  104402                                                            TRAP    C$BSUB
4586 026440  004737  030012             JSR     PC,T22REST              ;SET COMMAND PACKET
4587 026444  004737  030104             JSR     PC,T22RT2               ;SET UP OTHER COMMAND PACKET
4588
4589                                    ;*************************************************************************
4590                                    ;
4591                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
4592                                    ;
4593                                    ;*************************************************************************
4594
4595 026450  C04737  016064             JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
4596 026454  103407                     BCS     20$                     ;BR IF INIT WAS OK
4597 026456  005237  002212             INC     FATFLG                  ;BUMP COUNT
4601 026462  010001                     MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
4602 026464                             ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      026464  104455                                                            TRAP    C$ERDF
      026466  000326                                                            .WORD   214
      026470  003650                                                            .WORD   SFIERR
      026472  012124                                                            .WORD   SFIMSG
4603 026474                             20$:
4604 026474  012704  027040             MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4605
4606                                    ;*************************************************************************
4607                                    ;
4608                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4609                                    ;
4610                                    ;*************************************************************************
4611
4612 026500  004737  010752             JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4613 026504  103407                     BCS     23$                     ;BR, IF COMMAND ISSUED OK
4614 026506  005237  002212             INC     FATFLG                  ;BUMP COUNT
4618 026512  010001                     MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4619 026514                             ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      026514  104456                                                            TRAP    C$ERHRD
      026516  000327                                                            .WORD   215
      026520  005054                                                            .WORD   WRTMSG
      026522  012124                                                            .WORD   SFIMSG
4620 026524  005737  002216         23$:    TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
4621 026530  001041                     BNE     50$                     ;BR IF SWITCH IS ON
4622
4623 026532  112737  000200  027161     MOVB    #200,T22BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
4624 026540  112737  000010  027160     MOVB    #10,T22BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
4625 026546  012704  027150             MOV     #T22PK2,R4              ;WRITE SUBSYS MEM PACKET
4626 026552  010465  000000             MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4627 026556  004737  016426             JSR     PC,CHKTSSR              ;WAIT FOR SSR
4628 026562  103407                     BCS     30$                     ;BR, IF NO ERROR
4629 026564  010001                     MOV     R0,R1                   ;ERROR, SAVE TSSR
4630 026566  005237  002212             INC     FATFLG                  ;BUMP COUNT
4634 026572                             ERRHRD  ERRNO,T22SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
```

TEST  2: OFF-LINE AND REJECT REWIND

```
        026572  104456                                                          TRAP    C$ERHRD
        026574  000330                                                          .WORD   216
        026576  027200                                                          .WORD   T22SSR
        026600  012136                                                          .WORD   PKTSSR
  4635  026602                  30$:    CKLOOP                  ;LOOP IF SELECTED
        026602  104406                                                          TRAP    C$CLP1
  4636  026604  012704  027040          MOV     #T22PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS
  4637
  4638                          ;*************************************************************************
  4639                          ;
  4640                          ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
  4641                          ;
  4642                          ;*************************************************************************
  4643
  4644  026610  004737  010752          JSR     PC,WRTCHR       ;ISSUE WRITE CHARACTERISTICS
  4645  026614  103407                  BCS     50$             ;BR, IF COMMAND ISSUED OK
  4646  026616  005237  002212          INC     FATFLG          ;BUMP COUNT
  4650  026622  010001                  MOV     R0,R1           ;SAVE CONTENTS OF TSSR
  4651  026624                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        026624  104456                                                          TRAP    C$ERHRD
        026626  000331                                                          .WORD   217
        026630  005054                                                          .WORD   WRTMSG
        026632  012124                                                          .WORD   SFIMSG
  4652  026634                  50$:    CKLOOP                  ;SCOPE LOOP
        026634  104406                                                          TRAP    C$CLP1
  4653  026636  016501  000002          MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
  4654  026642  032701  000100          BIT     #OFL,R1         ;CHECK FOR THE OFFLINE BIT SET
  4655  026646  001006                  BNE     60$             ;BR, IF OFFLINE (GOOD)
  4656  026650  005237  002212          INC     FATFLG          ;BUMP COUNT
  4660  026654                          ERRDF   ERRNO,T22OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
        026654  104455                                                          TRAP    C$ERDF
        026656  000332                                                          .WORD   218
        026660  027375                                                          .WORD   T22OFL
        026662  012124                                                          .WORD   SFIMSG
  4661  026664                  60$:    CKLOOP                  ;LOOP IF SELECTED
        026664  104406                                                          TRAP    C$CLP1
  4662  026666  012737  142010  027150  65$:    MOV     #142010,T22PK2  ;POSITION COMMAND (REWIND MODE) CVC=1
  4663  026674  012704  027150          MOV     #T22PK2,R4      ;R4 = POINTER TO PACKET
  4664  026700  010465  000000          MOV     R4,TSDB(R5)     ;ISSUE COMMAND
  4665  026704  004737  016340          JSR     PC,WAITF        ;WAIT FOR SSR TO SET
  4666  026710  016501  000002          MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
  4667  026714  012702  100306          MOV     #SSR!OFL!SC!BIT1!BIT2,R2;SET UP EXPECTED
  4668  026720  020102                  CMP     R1,R2           ;ARE THEY EQUAL
  4669  026722  001406                  BEQ     80$             ;BR, IF OK ESP. FUNCTION REJECT
  4670  026724  005237  002212          INC     FATFLG          ;BUMP COUNT
  4674  026730                          ERRHRD  ERRNO,T22RWJ,EXPREC     ;TSSR INCORRECT AFTER TAPE MOTION CMD
        026730  104456                                                          TRAP    C$ERHRD
        026732  000333                                                          .WORD   219
        026734  027544                                                          .WORD   T22RWJ
        026736  015564                                                          .WORD   EXPREC
  4675  026740                  80$:    CKLOOP                  ;LOOP IF SELECTED
        026740  104406                                                          TRAP    C$CLP1
  4676  026742  012703  027062          MOV     #T22BFR,R3      ;POINTER TO MESSAGE BUFFER
  4677  026746  016301  000006          MOV     XSTO(R3),R1     ;PICK UP XSTO FROM MESSAGE BUFFER
  4678  026752  010102                  MOV     R1,R2           ;SET UP EXPECTED
  4679  026754  042702  000020          BIC     #BIT4,R2        ;VCK SHOULD BE CLEAR
  4680  026760  020102                  CMP     R1,R2           ;ARE THEY EQUAL
```

TEST  2: OFF-LINE AND REJECT REWIND

```
4681 026762  001406                    BEQ     90$                     ;BR, IF OK (GOOD)
4682 026764  005237  002212            INC     FATFLG                  ;BUMP COUNT
4686 026770                            ERRHRD  ERRNO,T22VCK,EXPREC     ;VCK WASN'T CLEAR (BAD)
     026770  104456                                                            TRAP    C$ERHRD
     026772  000334                                                            .WORD   220
     026774  027617                                                            .WORD   T22VCK
     026776  015564                                                            .WORD   EXPREC
4687 027000                        90$:
4688 027000                            ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     027000                                                                  L10042:
     027000  104403                                                            TRAP    C$ESUB
4689 027002  023727  002212  000017        CMP     FATFLG,#15.                 ;IS ERROR COUNT AT 25
4690 027010  103402                        BLO     999$                        ;BR, IF LESS THAN 25
4691 027012  004737  017272                JSR     PC,CKDROP                   ;TRY TO DROP THE UNIT
4692 027016                        999$:
4693 027016  004737  016546                JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
4694 027022  103002                        BCC     163$                    ;BR, IF NO LOOP REQUIRED
4695 027024  000137  025522                JMP     T22LOOP                 ;EXECUTE AGAIN
4696 027030                        163$:   EXIT    TST                     ;ALL DONE THIS TEST
     027030  104432                                                            TRAP    C$EXIT
     027032  001116                                                            .WORD   L10037-.
4697
4698                               ;+
4699                               ;LOCAL STORAGE FOR THIS TEST
4700                               ;-
4702 027034                            .BLKB   10-<.-TSV2&7>
4704 027040                        T22PACKET:                          ;COMMAND PACKET FOR TEST
4705 027040  100204                    .WORD   100204                  ;WRITE CHARACTERISTICS COMMAND, WITH IE, ACK
4706 027042  027050                    .WORD   T22DATA                 ;ADDRESS OF CHARACTERISTICS BLOCK
4707 027044  000000                    .WORD   0
4708 027046  000012                    .WORD   10.                     ;STARTING VALUE OF BLOCK SIZE
4709 027050                        T22DATA:                            ;CHARACTERISTICS DATA BLOCK
4710 027050  027062                    .WORD   T22BFR                  ;ADDRESS OF MESSAGE BUFFER
4711 027052  000000                    .WORD   0
4712 027054  000024                    .WORD   20.                     ;LENGTH OF MESSAGE BUFFER
4713 027056  000000                    .WORD   0
4714 027060  000007                    .WORD   7                       ;SELECT DRIVE 7
4715 027062                        T22BFR: .BLKW   25.                 ;MESSAGE BUFFER
4716                               ;
4717                               ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
4718                               ;
4720 027144                            .BLKB   10-<.-TSV2&7>
4722 027150                        T22PK2:
4723 027150  100206                    .WORD   100206                  ;WRITE SUB SYS MEM COMMAND, IE AND ACK
4724 027152  027160                    .WORD   T22BF2                  ;ADDRESS OF SELECT BLOCK DATA
4725 027154  000000                    .WORD   0
4726 027156  000006                    .WORD   6.                      ;SIZE OF DATA PACKET
4727
4728                                   .EVEN
4729 027160                        T22BF2:
4730 027160     000                T22BS0: .BYTE   0                   ;BSEL0 AREA
4731 027161     000                T22BS1: .BYTE   0                   ;BSEL1 AREA
4732 027162  000000                T22S2:  .WORD   0                   ;SEL 2 AREA
4733 027164  000000                T22S3:  .WORD   0                   ;DATA AREA
4734                               ;
4735                               ;
4736                                   .EVEN
```

TEST 2: OFF-LINE AND REJECT REWIND

```
                                        ;TAPE MOTION PACKET COMMAND VALUES
027166  100201                          T22RD:  .WORD   100201          ;READ TAPE FORWARD
027170  100205                          T22WRT: .WORD   100205          ;WRITE TAPE FORWARD
027172  100210                          T22POS: .WORD   100210          ;POSITION TAPE
027174  100211                          T22FOR: .WORD   100211          ;FORMAT TAPE
027176  177777                                  .WORD   177777          ;END OF DATA


                                        ;*
                                        ;LOCAL TEXT MESSAGES FOR TEST
                                        ;-

027200  127  122  111  T22SSR: .ASCIZ  'WRITE MISCELLANEOUS CONTROL/READ STATUS Command Not Accepted'
027275  124  123  123  T22AM3: .ASCIZ  'TSSR Init. Failed After WRITE MISCELLANEOUS CONRTOL/READ STATUS'
027375  104  162  151  T22OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
027450  124  123  123  T22TM:  .ASCIZ  'TSSR Incorrect After Tape Motion Command To Off-Line Device'
027544  124  123  123  T22RWJ: .ASCIZ  'TSSR Not Correct After REWIND With VCK Set'
027617  103  126  103  T22VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
027672  052  052  052  T22WLK: .ASCIZ  '*****TAPE IS WRITE-LOCKED AND WILL CAUSE ERRORS*****'
027757  117  146  146  TST22ID:        .ASCIZ  'Off-Line And Reject Rewind'
                                        .EVEN
                                        ;*
                                        ;
                                        ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
                                        ;WRITE SUBSYSTEM MEMORY COMMAND
                                        ;
                                        ;-

030012                                  T22REST:
030012                                          SAVREG                  ;SAVE THE REGISTERS
030016  012701  027040                          MOV     #T22PACKET,R1   ;START OF THE PACKET
030022  012721  100204                          MOV     #100204,(R1)+   ;WRITE SUBSYSTEM MEM. WITH ACK, IE
030026  012721  027050                          MOV     #T22DATA,(R1)+  ;ADDRESS OF CHARAISTICS DATA BLOCK
030032  005021                                  CLR     (R1)+           ;EXTENDED ADDRESS
030034  012721  000012                          MOV     #10.,(R1)+      ;SIZE OF DATA BLOCK IN BYTES
030040  012721  027062                          MOV     #T22BFR,(R1)+   ;ADDRESS OF MESSAGE BUFFER
030044  005021                                  CLR     (R1)+
030046  012721  000024                          MOV     #20.,(R1)+      ;LENGTH OF MESSAGE BUFFER
030052  005021                                  CLR     (R1)+
030054  012711  000007                          MOV     #7,(R1)         ;SELECT DRIVE SEVEN
030060  012702  000020                          MOV     #20,R2          ;NUMBER OF LOCATIONS TO BE CLEARED
030064  012762  177777  027062  64$:           MOV     #177777,T22BFR(R2) ;ALL ONES TO MESSAGE BUFFER
030072  005742                                  TST     -(R2)           ;BUMP R2 DOWN
030074  020227  000000                          CMP     R2,#0           ;IS R2 AT ZERO YET
030100  001371                                  BNE     64$             ;KEEP GOING UNTIL DONE
030102  000207                                  RTS     PC              ;RETURN


030104                                  T22RT2:
030104                                          SAVREG                  ;SAVE THE REGISTERS
030110  012701  027150                          MOV     #T22PK2,R1      ;START OF THE PACKET
030114  012721  100206                          MOV     #100206,(R1)+   ;WRITE SUBSYSTEM MEM. WITH ACK, IE
030120  012721  027160                          MOV     #T22BF2,(R1)+   ;ADDRESS OF DATA BLOCK
030124  005021                                  CLR     (R1)+           ;EXTENDED ADDRESS
030126  012721  000006                          MOV     #6.,(R1)+       ;SIZE OF DATA BLOCK IN BYTES
030132  005021                                  CLR     (R1)+
030134  012701  027160                          MOV     #T22BF2,R1      ;POINT TO DATA SEL AREA
```

TEST 2: OFF-LINE AND REJECT REWIND

```
4794 030140  005021                    CLR     (R1)+
4795 030142  005011                    CLR     (R1)
4796 030144  005011                    CLR     (R1)                    ;LAST LOC TO BE CLEARED
4797 030146  000207                    RTS     PC                      ;RETURN
4798 030150                            ENDTST
     030150                                                                    L10037:
     030150  104401                                                                    TRAP    C$ETST
4799
4800                                   .SBTTL  TEST  3: BASIC WRITE DATA
4801                                ;+
4802                                ;
4803                                ;THIS TEST VERIFIES THAT THE WRITE DATA (NEXT) COMMAND OPERATES
4804                                ;PROPERLY, UP TO THE POINT OF CHECKING THAT THE DATA WAS ACTUALLY
4805                                ;WRITTEN ONTO THE TAPE CORRECTLY. CHECKING IN THIS TEST IS
4806                                ;LIMITED TO VERIFYING THAT THE COMMAND TERMINATED CORRECTLY WITH
4807                                ;THE CORRECT REGISTER, MESSAGE BUFFER AND RAM CONTENTS.
4808                                ;
4809                                ;THE TEST CONSISTS OF THE FOLLOWING 7 SUBTESTS
4810                                ;
4811                                ;
4812                                ;
4813                                ;-
4814 030152                            BGNTST
     030152                                                                    T3::
4815 030152  012737  006356  002170        MOV     @EPRT1,EPRTSW           ;SET UP PRIMARY ERROR MESSAGE
4816 030160  005037  003124                CLR     KTENABLE                        ;TURN OFF KT11
4817 030164  004737  017364                JSR     PC,KTOFF                        ;TURN OFF KT11
4822 030170  004737  016274                JSR     PC,DS@INT               ;DISABLE INTERRUPTS
4823 030174  012700  034746                MOV     @TST23ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
4824 030200  004737  016600                JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
4825 030204  004737  022206                JSR     PC,MEMCK                ;CHECK FOR MEMORY
4826 030210  005037  003126                CLR     NXMFLG                  ;SET FLAG
4827 030214  012737  000005  002206        MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
4828                                ;+
4829                                ;
4830                                ;TEST 3, SUBTEST 1
4831                                ;
4832                                ;VERIFIES THAT A WRITE COMMAND (ANY VALID MODE CODE)
4833                                ;WITH THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS
4834                                ;REJECTED IF THE VOLUME CHECK (VCK) FLAG IS SET. ALL
4835                                ;VALID MODE CODES ARE CHECKED (WRITE DATA, WRITE
4836                                ;RETRY).
4837                                ;-
4838
4839 030222                         T23LOOP:
4840 030222                            BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
     030222                                                                    T3.1:
     030222  104402                                                                TRAP    C$BSUB
4841 030224  004737  034762                JSR     PC,T23REST              ;SET COMMAND PACKET
4842 030230  004737  035054                JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET
4843
4844                                ;*************************************************************************
4845                                ;
4846                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
4847                                ;
4848                                ;*************************************************************************
4849
```

TEST 3: BASIC WRITE DATA

```
4850 030234  004737  016064              JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
4851 030240  103407                      BCS     20$                     ;BR IF INIT WAS OK
4852 030242  005237  002212              INC     FATFLG                  ;BUMP COUNT
4856 030246  010001                      MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
4857 030250                              ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     030250  104455                                                              TRAP    C$ERDF
     030252  000455                                                              .WORD   301
     030254  003650                                                              .WORD   SFIERR
     030256  012124                                                              .WORD   SFIMSG
4858 030260                      20$:
4859 030260  012737  000007  033460          MOV     #7,T23DSW               ;SET DRIVE NUMBER IN PACKET
4860 030266  012704  033440                  MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4861
4862                             ;*************************************************************************
4863                             ;
4864                             ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4865                             ;
4866                             ;*************************************************************************
4867
4868 030272  004737  010752              JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4869 030276  103407                      BCS     23$                     ;BR, IF COMMAND ISSUED OK
4870 030300  005237  002212              INC     FATFLG                  ;BUMP COUNT
4874 030304  010001                      MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4875 030306                              ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     030306  104456                                                              TRAP    C$ERHRD
     030310  000456                                                              .WORD   302
     030312  005054                                                              .WORD   WRTMSG
     030314  012124                                                              .WORD   SFIMSG
4876 030316  005737  002216      23$:        TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
4877 030322  001044                      BNE     50$                     ;BR IF SWITCH IS ON
4878
4879 030324  112737  000200  033603          MOVB    #200,T23BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
4880 030332  112737  000010  033602          MOVB    #10,T23BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
4881 030340  012704  033550                  MOV     #T23PK2,R4              ;WRITE SUBSYS MEM PACKET
4882 030344  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4883 030350  004737  016426                  JSR     PC,CHKTSSR              ;WAIT FOR SSR
4884 030354  103407                      BCS     30$                     ;BR, IF NO ERROR
4885 030356  010001                      MOV     R0,R1                   ;ERROR, SAVE TSSR
4886 030360  005237  002212              INC     FATFLG                  ;BUMP COUNT
4890 030364                              ERRHRD  ERRNO,T23SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
     030364  104456                                                              TRAP    C$ERHRD
     030366  000457                                                              .WORD   303
     030370  033624                                                              .WORD   T23SSR
     030372  012136                                                              .WORD   PKTSSR
4891 030374                      30$:        CKLOOP                          ;LOOP IF SELECTED
     030374  104406                                                              TRAP    C$CLP1
4892 030376  012737  000007  033460          MOV     #7,T23DSW               ;SET DRIVE NUMBER IN PACKET
4893 030404  012704  033440                  MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4894
4895                             ;*************************************************************************
4896                             ;
4897                             ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4898                             ;
4899                             ;*************************************************************************
4900
4901 030410  004737  010752              JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4902 030414  103407                      BCS     50$                     ;BR, IF COMMAND ISSUED OK
```

TEST 3: BASIC WRITE DATA

```
4903 030416  005237  002212          INC     FATFLG                  ;BUMP COUNT
4907 030422  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4908 030424                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     030424  104456                                                          TRAP    C$ERHRD
     030426  000460                                                          .WORD   304
     030430  005054                                                          .WORD   WRTMSG
     030432  012124                                                          .WORD   SFIMSG
4909 030434                  50$:    CKLOOP                          ;SCOPE LOOP
     030434  104406                                                          TRAP    C$CLP1
4910 030436  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4911 030442  032701  000100          BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
4912 030446  001006                  BNE     60$                     ;BR, IF OFFLINE (GOOD)
4913 030450  005237  002212          INC     FATFLG                  ;BUMP COUNT
4917 030454                          ERRDF   ERRNO,T23OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
     030454  104455                                                          TRAP    C$ERDF
     030456  000461                                                          .WORD   305
     030460  034266                                                          .WORD   T23OFL
     030462  012124                                                          .WORD   SFIMSG
4918 030464                  60$:    CKLOOP                          ;LOOP IF SELECTED
     030464  104406                                                          TRAP    C$CLP1
4919 030466  012703  033614          MOV     #T23WD,R3               ;POINTER FOR COMMANDS
4920 030472  011337  033550  65$:    MOV     (R3),T23PK2             ;TAPE MOTION COMMAND IN PLACE
4921 030476  012704  033550          MOV     #T23PK2,R4              ;R4 = POINTER TO PACKET
4922 030502  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4923 030506  004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4924 030512  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4925 030516  012702  100306          MOV     #SSR!SC!OFL!BIT1!BIT2,R2;SET UP EXPECTED
4926 030522  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
4927 030524  001406                  BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
4928 030526  005237  002212          INC     FATFLG                  ;BUMP COUNT
4932 030532                          ERRHRD  ERRNO,T23TM,EXPREC      ;TSSR INCORRECT AFTER TAPE MOTION CMD
     030532  104456                                                          TRAP    C$ERHRD
     030534  000462                                                          .WORD   306
     030536  034022                                                          .WORD   T23TM
     030540  015564                                                          .WORD   EXPREC
4933 030542                  80$:    CKLOOP                          ;LOOP IF SELECTED
     030542  104406                                                          TRAP    C$CLP1
4934 030544  005723                  TST     (R3)+                   ;POINT TO NEXT COMMAND
4935 030546  022713  177777          CMP     #177777,(R3)            ;END OF THE COMMANDS YET
4936 030552  001401                  BEQ     90$                     ;BR, IF DONE
4937 030554  000746                  BR      65$                     ;MORE COMMAND(S) TO GO
4938 030556                  90$:
4939 030556                          ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     030556                                                                  L10044:
     030556  104403                                                          TRAP    C$ESUB
4940 030560  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
4941 030566  103402                          BLO     999$                    ;BR, IF LESS THAN 25
4942 030570  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
4943 030574                  999$:
4944
4945                         ;+
4946                         ;
4947                         ;TEST 3, SUBTEST 2
4948                         ;
4949                         ;VERIFIES THAT WRITE DATA COMMANDS WITH CVC=1 AND THE
4950                         ;SWAP BYTES (SWB) BIT CLEAR OPERATES PROPERLY. THE
4951                         ;BYTE COUNT (RECORD SIZE) VARIES FROM 20 THROUGH 64K
```

TEST 3: BASIC WRITE DATA

```
                                ;IN VARYING INCREMENTS (DEPENDING UPON WHETHER OR NOT
                                ;THE DIAGNOSTIC IS RUNNING IN THE LONG VERIFICATION
                                ;MODE). THE TAPE IS NOT REWOUND BETWEEN SUCCESSIVE
                                ;RECORDS BUT IS REWOUND AFTER THE FINAL RECORD IS
                                ;WRITTEN. AN INCREMENTING COUNT PATTERN IS SUPPLIED
                                ;IN THE DATA BUFFER. AFTER EACH BLOCK IS WRITTEN, THE
                                ;TSSR AND TSBA REGISTERS, THE MESSAGE BUFFER, AND THE
                                ;RAM CONTENTS ARE CHECKED. (THE RAM CONTENTS ARE CHECKED
                                ;USING THE WRITE SUBSYSTEM MEMORY COMMAND.
                                ;
                                ;
                                ;-
4965 030574                             BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
     030574                                                                             T3.2:
     030574  104402                                                                      TRAP    C$BSUB
4966 030576  013701  003116             MOV     FRESIZ,R1               ;GET SIZE OF AVAILIABLE MEMORY
4967 030602  000241                     CLC                             ;CLEAR THE CARRY BIT
4968 030604  C06101                     ROL     R1                      ;MAKE INTO BYTES
4969 030606  010137  033600             MOV     R1,T23RSZ               ;STORE IN TEST FOR USE LATER
4970 030612  004737  034762             JSR     PC,T23REST              ;SET COMMAND PACKET
4971 030616  004737  035116             JSR     PC,T23RT3               ;RESTORE PACKET
4972 030622  004737  035054             JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET
4973
4974                            ;*************************************************************************
4975                            ;
4976                            ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
4977                            ;
4978                            ;*************************************************************************
4979
4980 030626  004737  016064             JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
4981 030632  103407                     BCS     20$                     ;BR IF INIT WAS OK
4982 030634  005237  002212             INC     FATFLG                  ;BUMP COUNT
4986 030640  010001                     MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
4987 030642                             ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     030642  104455                                                                     TRAP    C$ERDF
     030644  000463                                                                     .WORD   307
     030646  003650                                                                     .WORD   SFIERR
     030650  012124                                                                     .WORD   SFIMSG
4988 030652                     20$:
4989 030652  013737  002172  033460     MOV     UNITN,T23DSW            ;LOAD UP SELECTED UNIT NUMBER
4990 030660  012704  033440             MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4991
4992                            ;*************************************************************************
4993                            ;
4994                            ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4995                            ;
4996                            ;*************************************************************************
4997
4998 030664  004737  010752             JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4999 030670  103407                     BCS     23$                     ;BR, IF COMMAND ISSUED OK
5000 030672  005237  002212             INC     FATFLG                  ;BUMP COUNT
5004 030676  010001                     MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5005 030700                             ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     030700  104456                                                                     TRAP    C$ERHRD
     030702  000464                                                                     .WORD   308
     030704  005054                                                                     .WORD   WRTMSG
```

```
     030706  012124                                                                  .WORD   SFIMSG
     030710                          23$:    CKLOOP                          ;LOOP IF SELECTED
     030710  104406                                                                  TRAP    C$CLP1

                                     ;*******************************************************************
                                     ;
                                     ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                     ;
                                     ;*******************************************************************

     030712  004737  011104                  JSR     PC,REWIND                   ;CALL THE TAPE REWIND
     030716  012703  000024                  MOV     #20.,R3                     ;STARTING RECORD SIZE
     030722  013737  003114  033572  65$:    MOV     FREE,T23WB                  ;STARTING WRITE BUFFER ADDRESS

                                     ;*******************************************************************
                                     ;
                                     ;WRITE DATA,CVC=1,ACK COMMAND
                                     ;
                                     ;*******************************************************************

     030730  012737  140005  033570          MOV     #140005,T23PK3              ;WRITE DATA,CVC=1,ACK COMMAND
     030736  012737  140005  033612          MOV     #140005,T23WRT              ;SETUP FOR RETRY COMMAND
     030744  052737  004000  033612          BIS     #4000,T23WRT                ;MAKE IT A RETRY
     030752  012704  033570                  MOV     #T23PK3,R4                  ;SET UP R4 WITH PACKET ADDRESS
     030756  010300                          MOV     R3,R0                       ;SET PATTERN IN CORRECT REGISTER
     030760  004737  017512                  JSR     PC,FILLMEM                  ;FILL MEMORY WITH RECORD SIZE
     030764  010337  033576                  MOV     R3,T23SZ                    ;SET UP RECORD SIZE IN PACKET
     030770  010465  000000                  MOV     R4,TSDB(R5)                 ;ISSUE COMMAND
     030774  004737  016340                  JSR     PC,WAITF                    ;WAIT FOR SSR TO SET
     031000  016501  000002                  MOV     TSSR(R5),R1                 ;GET TSSR CONTENTS
     031004  012702  000200                  MOV     #SSR,R2                     ;SET UP EXPECTED
     031010  020102                          CMP     R1,R2                       ;ARE THEY EQUAL
     031012  001402                          BEQ     80$                         ;BR, IF OK
     031014  004737  035142                  JSR     PC,T23CHK                   ;CHECK SPECIAL CONDITION
     031020                          80$:    CKLOOP                              ;LOOP IF SELECTED
     031020  104406                                                                  TRAP    C$CLP1
     031022  016501  000000                  MOV     TSBA(R5),R1                 ;GET TSBA CONTENTS
     031026  012702  033462                  MOV     #T23BFR,R2                  ;SET UP EXPECTED
     031032  062702  000016                  ADD     #16,R2                      ;SET TO END OF MESSAGE BUFFER
     031036  005737  002216                  TST     EXTFEA                      ;CHECK FOR EXTENDED FEATURES SW SET
     031042  001402                          BEQ     85$                         ;BR, IF IT NOT SET
     031044  062702  000002                  ADD     #2,R2                       ;BUMP R2 FOR EXTRA DATA
     031050  020102                  85$:    CMP     R1,R2                       ;ARE THEY EQUAL
     031052  001406                          BEQ     90$                         ;BR, IF TSBA IS CORRECT
     031054  005237  002212                  INC     FATFLG                      ;BUMP COUNT
     031060                                  ERRHRD  ERRNO,T23BA,EXPREC          ;TSBA WAS NOT CORRECT AFTER WRITE DATA
     031060  104456                                                                  TRAP    C$ERHRD
     031062  000465                                                                  .WORD   309
     031064  034605                                                                  .WORD   T23BA
     031066  015564                                                                  .WORD   EXPREC
     031070                          90$:    CKLOOP                              ;LOOP IF SELECTED
     031070  104406                                                                  TRAP    C$CLP1
     031072  020327  007376                  CMP     R3,#7376                    ;ONLY CHECK RAM UNTIL ITS FULL
     031076  002114                          BGE     115$                        ;IT WRAPS AROUND ETC.
     031100  004737  035054                  JSR     PC,T23RT2                   ;MAKE SURE PACKET AND DATA ARE CLEAN
     031104  012737  000400  033604          MOV     #256.,T23S2                 ;STARTING RAM ADDRESS
     031112  112737  000000  033602          MOVB    #0,T23BS0                   ;STOP INTERNAL TSV05 DIAGNOSTICS
```

TEST 3: BASIC WRITE DATA

```
5058 031120  112737  000000  033603          MOVB    #0,T23BS1               ;SIZE OF RAM READ
5059 031126  012704  033550                  MOV     #T23PK2,R4              ;SET R4 WITH PACKET ADDRESS
5060 031132  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE WRITE SUB SYS MEM COMMAND
5061 031136  004737  016426                  JSR     PC,CHKTSSR              ;CHECK TSSR AND WAIT FOR SSR TO SET
5062 031142  103407                          BCS     92$                     ;BR, IF NO ERRORS IN TSSR
5063 031144  010001                          MOV     R0,R1                   ;SAVE TSSR
5064 031146  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5068 031152                                  ERRHRD  ERRNO,T23WSS,PKTSSR     ;TSSR BAD AFTER WRITE SUB SYS MEM
     031152  104456                                                                  TRAP    C$ERHRD
     031154  000466                                                                  .WORD   310
     031156  034657                                                                  .WORD   T23WSS
     031160  012136                                                                  .WORD   PKTSSR
5069 031162                          92$:    CKLOOP                          ;LOOP IF SELECTED
     031162  104406                                                                  TRAP    C$CLP1
5070 031164  004737  035054                  JSR     PC,T23RT2               ;MAKE SURE PACKET AND DATA ARE CLEAN
5071 031170  012737  000400  033604          MOV     #256.,T23S2             ;STARTING RAM ADDRESS
5072 031176  112737  000001  033602          MOVB    #1,T23BSO               ;READ RAM COMMAND FOR WRITE SUB SYS M.
5073 031204  112737  000002  033603          MOVB    #2,T23BS1               ;SIZE OF RAM READ
5074 031212  012704  033550                  MOV     #T23PK2,R4              ;SET R4 WITH PACKET ADDRESS
5075 031216  010465  000000          95$:    MOV     R4,TSDB(R5)             ;ISSUE WRITE SUB SYS MEM COMMAND
5076 031222  004737  016426                  JSR     PC,CHKTSSR              ;CHECK TSSR AND WAIT FOR SSR TO SET
5077 031226  103407                          BCS     100$                    ;BR, IF NO ERRORS IN TSSR
5078 031230  010001                          MOV     R0,R1                   ;SAVE TSSR
5079 031232  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5083 031236                                  ERRHRD  ERRNO,T23WSS,PKTSSR     ;TSSR BAD AFTER WRITE SUB SYS MEM
     031236  104456                                                                  TRAP    C$ERHRD
     031240  000467                                                                  .WORD   311
     031242  034657                                                                  .WORD   T23WSS
     031244  012136                                                                  .WORD   PKTSSR
5084 031246                          100$:   CKLOOP                          ;LOOP IF SELECTED
     031246  104406                                                                  TRAP    C$CLP1
5085 031250  005001                          CLR     R1                      ;CLEAR REGISTER
5086 031252  005002                          CLR     R2                      ;CLEAR REGISTER
5087 031254  013701  033502                  MOV     T23BFR+20,R1            ;PICK UP BYTE READ FROM RAM
5088 031260  010302                          MOV     R3,R2                   ;SET UP EXPECTED
5089 031262  020102                          CMP     R1,R2                   ;IS RAM DATA CORRECT
5090 031264  001406                          BEQ     110$                    ;BR, IF OK (EQUAL)
5091 031266  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5095 031272                                  ERRHRD  ERRNO,T23RNC,EXPREC     ;RNC-RAM NOT CORRECT
     031272  104456                                                                  TRAP    C$ERHRD
     031274  000470                                                                  .WORD   312
     031276  034145                                                                  .WORD   T23RNC
     031300  015564                                                                  .WORD   EXPREC
5096 031302                          110$:   CKLOOP                          ;LOOP IF SELECTED
     031302  104406                                                                  TRAP    C$CLP1
5097 031304  005237  033604                  INC     T23S2                   ;BUMP RAM ADDRESS TO BE CHECKED
5098 031310  005237  033604                  INC     T23S2                   ;BUMP RAM ADDRESS TO BE CHECKED
5099 031314  010301                          MOV     R3,R1                   ;GET SIZE OF RECORD
5100 031316  062701  000400                  ADD     #256.,R1                ;FIGURE OUT END RECORD ADDRESS
5101 031322  023701  033604                  CMP     T23S2,R1                ;AT END OF RAM CHECK YET
5102 031326  001333                          BNE     95$                     ;BR, IF MORE TO CHECK
5103 031330  062703  001750          115$:   ADD     #1000.,R3               ;NEXT RECORD SIZE/DATA PATTERN
5104 031334  020337  033600                  CMP     R3,T23RSZ               ;IS R3 OVER MAX RECORD SIZE
5105 031340  002005                          BGE     120$                    ;IF RECORD SIZE IS TOO BIG QUIT
5106 031342  020327  177776                  CMP     R3,#65534.              ;END OF SUBTEST MAX RECORD SIZE
5107 031346  001402                          BEQ     120$                    ;BR, IF COMPLETED
5108 031350  000137  030722                  JMP     65$                     ;DO MORE RECORDS
```

TEST 3: BASIC WRITE DATA

```
5109 031354                          120$:
5110 031354  004737  035116                JSR     PC,T23RT3               ;RESTORE PACKET
5111 031360  004737  035054                JSR     PC,T23RT2               ;CLEAN UP PACKET
5112 031364  012737  102010  033550        MOV     #102010,T23PK2          ;REWIND (POSITION) COMMAND
5113 031372  012704  033550                MOV     #T23PK2,R4              ;LOAD R4 WITH PACKET ADDRESS
5114 031376  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE REWIND COMMAND
5115 031402  004737  016426                JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
5116 031406  103407                        BCS     130$                    ;BR, IF TSSR IS OK (GOOD)
5117 031410  010001                        MOV     R0,R1                   ;SAVE TSSR CONTENTS
5118 031412  005237  002212                INC     FATFLG                  ;BUMP COUNT
5122 031416                                ERRHRD  ERRNO,T23RWN,PKTSSR     ;TSSR IS INCORRECT AFTER REWIND
     031416  104456                                                                TRAP    C$ERHRD
     031420  000471                                                                .WORD   313
     031422  034076                                                                .WORD   T23RWN
     031424  012136                                                                .WORD   PKTSSR
5123 031426                          130$:
5124 031426                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     031426                                                                        L10045:
     031426  104403                                                                TRAP    C$ESUB
5125 031430  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
5126 031436  103402                        BLO     999$                            ;BR, IF LESS THAN 25
5127 031440  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
5128 031444                          999$:
5129
5130                                 ;+
5131                                 ;
5132                                 ;TEST 3, SUBTEST 3
5133                                 ;
5134                                 ;VERIFIES THAT WRITE DATA COMMANDS WITH CVC=1 AND THE
5135                                 ;SWAP BYTES (SWB) BIT SET OPERATES PROPERLY. THE TEST
5136                                 ;SEQUENCE IS IDENTICAL TO THAT USED IN SUBTEST 2.
5137                                 ;THE RESULTS, EXCEPT FOR RAM CONTENTS, SHOULD BE THE SAME.
5138                                 ;
5139                                 ;
5140                                 ;
5141                                 ;-
5142 031444                                BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     031444                                                                        T3.3:
     031444  104402                                                                TRAP    C$BSUB
5143 031446  004737  034762                JSR     PC,T23REST              ;SET COMMAND PACKET
5144 031452  004737  035054                JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET
5145
5146                                 ;******************************************************************************
5147                                 ;
5148                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
5149                                 ;
5150                                 ;******************************************************************************
5151
5152 031456  004737  016064                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
5153 031462  103407                        BCS     20$                     ;BR IF INIT WAS OK
5154 031464  005237  002212                INC     FATFLG                  ;BUMP COUNT
5158 031470  010001                        MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
5159 031472                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     031472  104455                                                                TRAP    C$ERDF
     031474  000472                                                                .WORD   314
     031476  003650                                                                .WORD   SFIERR
     031500  012124                                                                .WORD   SFIMSG
```

TEST 3: BASIC WRITE DATA

```
5160 031502                          20$:
5161 031502  013737  002172  033460          MOV     UNITN,T23DSW            ;SET UP UNIT NUMBER
5162 031510  012704  033440                  MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5163
5164                                 ;*************************************************************************
5165                                 ;
5166                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
5167                                 ;
5168                                 ;*************************************************************************
5169
5170 031514  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5171 031520  103407                          BCS     23$                     ;BR. IF COMMAND ISSUED OK
5172 031522  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5176 031526  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5177 031530                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     031530  104456                                                                  TRAP    C$ERHRD
     031532  000473                                                                  .WORD   315
     031534  005054                                                                  .WORD   WRTMSG
     031536  012124                                                                  .WORD   SFIMSG
5178 031540                          23$:
5179 031540  012703  000024                  MOV     #20.,R3                 ;STARTING RECORD SIZE
5180 031544  013737  003114  033572  65$:    MOV     FREE,T23WB              ;STARTING WRITE BUFFER ADDRESS
5181
5182                                 ;*************************************************************************
5183                                 ;
5184                                 ;WRITE DATA,CVC=1,ACK,SWB COMMAND
5185                                 ;
5186                                 ;*************************************************************************
5187
5188 031552  012737  150005  033570          MOV     #150005,T23PK3          ;WRITE DATA,CVC=1,ACK,SWB COMMAND
5189 031560  012737  150005  033612          MOV     #150005,T23WRT          ;SETUP FOR RETRY COMMAND
5190 031566  052737  004000  033612          BIS     #4000,T23WRT            ;MAKE IT A RETRY
5191 031574  012704  033570                  MOV     #T23PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5192 031600  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
5193 031602  004737  017512                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
5194 031606  010337  033576                  MOV     R3,T23SZ                ;SET UP RECORD SIZE IN PACKET
5195 031612  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5196 031616  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5197 031622  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5198 031626  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
5199 031632  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
5200 031634  001402                          BEQ     80$                     ;BR. IF OK
5201 031636  004737  035142                  JSR     PC,T23CHK               ;CHECK SPECIAL CONDITION
5202 031642                          80$:    CKLOOP                          ;LOOP IF SELECTED
     031642  104406                                                                  TRAP    C$CLP1
5203 031644  016501  000000                  MOV     TSBA(R5),R1             ;GET TSBA CONTENTS
5204 031650  012702  033462                  MOV     #T23BFR,R2              ;SET UP EXPECTED
5205 031654  062702  000016                  ADD     #16,R2                  ;SET TO END OF MESSAGE BUFFER
5206 031660  005737  002216                  TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SET
5207 031664  001402                          BEQ     85$                     ;BR. IF IT NOT SET
5208 031666  062702  000002                  ADD     #2,R2                   ;BUMP R2 FOR EXTRA DATA
5209 031672  020102                  85$:    CMP     R1,R2                   ;ARE THEY EQUAL
5210 031674  001406                          BEQ     90$                     ;BR. IF TSBA IS CORRECT
5211 031676  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5215 031702                                  ERRHRD  ERRNO,T23BA,EXPREC      ;TSBA WAS NOT CORRECT AFTER WRITE DATA
     031702  104456                                                                  TRAP    C$ERHRD
     031704  000474                                                                  .WORD   316
```

TEST 3: BASIC WRITE DATA

```
                031706  034605                                                          .WORD   T23BA
                031710  015564                                                          .WORD   EXPREC
5216            031712                          90$:    CKLOOP                  ;LOOP IF SELECTED
                031712  104406                                                          TRAP    C$CLP1
5217            031714  020327  007376                  CMP     R3,#7376        ;ONLY CHECK RAM UNTIL ITS FULL
5218            031720  002115                  BGE     115$                    ;IT WRAPS AROUND ETC.
5219            031722  004737  035054                  JSR     PC,T23RT2       ;MAKE SURE PACKET AND DATA ARE CLEAN
5220            031726  012737  000400  033604          MOV     #256.,T23S2     ;STARTING RAM ADDRESS
5221            031734  112737  000000  033602          MOVB    #0,T23BS0       ;STOP INTERNAL TSV05 DIAGNOSTICS
5222            031742  112737  000000  033603          MOVB    #0,T23BS1       ;SIZE OF RAM READ
5223            031750  012704  033550                  MOV     #T23PK2,R4      ;SET R4 WITH PACKET ADDRESS
5224            031754  010465  000000                  MOV     R4,TSDB(R5)     ;ISSUE WRITE SUB SYS MEM COMMAND
5225            031760  004737  016426                  JSR     PC,CHKTSSR      ;CHECK TSSR AND WAIT FOR SSR TO SET
5226            031764  103407                  BCS     92$                     ;BR, IF NO ERRORS IN TSSR
5227            031766  010001                  MOV     R0,R1                   ;SAVE TSSR
5228            031770  005237  002212                  INC     FATFLG          ;BUMP COUNT
5232            031774                          ERRHRD  ERRNO,T23WSS,PKTSSR     ;TSSR BAD AFTER WRITE SUB SYS MEM
                031774  104456                                                          TRAP    C$ERHRD
                031776  000475                                                          .WORD   317
                032000  034657                                                          .WORD   T23WSS
                032002  012136                                                          .WORD   PKTSSR
5233            032004                          92$:    CKLOOP                  ;LOOP IF SELECTED
                032004  104406                                                          TRAP    C$CLP1
5234            032006  004737  035054                  JSR     PC,T23RT2       ;MAKE SURE PACKET AND DATA ARE CLEAN
5235            032012  012737  000400  033604          MOV     #256.,T23S2     ;STARTING RAM ADDRESS
5236            032020  112737  000001  033602          MOVB    #1,T23BS0       ;READ RAM COMMAND FOR WRITE SUB SYS M.
5237            032026  112737  000002  033603          MOVB    #2,T23BS1       ;SIZE OF RAM READ
5238            032034  012704  033550                  MOV     #T23PK2,R4      ;SET R4 WITH PACKET ADDRESS
5239            032040  010465  000000          95$:    MOV     R4,TSDB(R5)     ;ISSUE WRITE SUB SYS MEM CMD (READ RAM)
5240            032044  004737  016426                  JSR     PC,CHKTSSR      ;CHECK TSSR AND WAIT FOR SSR TO SET
5241            032050  103407                  BCS     100$                    ;BR, IF NO ERRORS IN TSSR
5242            032052  010001                  MOV     R0,R1                   ;SAVE TSSR
5243            032054  005237  002212                  INC     FATFLG          ;BUMP COUNT
5247            032060                          ERRHRD  ERRNO,T23WSS,PKTSSR     ;TSSR BAD AFTER WRITE SUB SYS MEM
                032060  104456                                                          TRAP    C$ERHRD
                032062  000476                                                          .WORD   318
                032064  034657                                                          .WORD   T23WSS
                032066  012136                                                          .WORD   PKTSSR
5248            032070                          100$:   CKLOOP                  ;LOOP IF SELECTED
                032070  104406                                                          TRAP    C$CLP1
5249            032072  005001                  CLR     R1                      ;CLEAR REGISTERS
5250            032074  005002                  CLR     R2                      ;CLEAR REGISTERS
5251            032076  013701  033502                  MOV     T23BFR+20,R1    ;PICK UP BYTE READ FROM RAM
5252            032102  010302                  MOV     R3,R2                   ;SET UP EXPECTED
5253            032104  000302                  SWAB    R2                      ;SWAP BYTES
5254            032106  020102                  CMP     R1,R2                   ;IS RAM DATA CORRECT
5255            032110  001406                  BEQ     110$                    ;BR, IF OK (EQUAL)
5256            032112  005237  002212                  INC     FATFLG          ;BUMP COUNT
5260            032116                          ERRHRD  ERRNO,T23RNC,EXPREC     ;RNC=RAM NOT CORRECT
                032116  104456                                                          TRAP    C$ERHRD
                032120  000477                                                          .WORD   319
                032122  034145                                                          .WORD   T23RNC
                032124  015564                                                          .WORD   EXPREC
5261            032126                          110$:   CKLOOP                  ;LOOP IF SELECTED
                032126  104406                                                          TRAP    C$CLP1
5262            032130  005237  033604                  INC     T23S2           ;BUMP RAM ADDRESS TO BE CHECKED
5263            032134  005237  033604                  INC     T23S2           ;BUMP RAM ADDRESS TO BE CHECKED
```

TEST 3: BASIC WRITE DATA

```
5264 032140  010301                        MOV     R3,R1                   ;GET SIZE OF RECORD
5265 032142  062701  000400                ADD     #256.,R1                ;FIGURE OUT END RECORD ADDRESS
5266 032146  023701  033604                CMP     T23S2,R1                ;AT END OF RAM CHECK YET
5267 032152  001332                        BNE     95$                     ;BR, IF MORE TO CHECK
5268 032154  062703  001750        115$:   ADD     #1000.,R3               ;NEXT RECORD SIZE/DATA PATTERN
5269 032160  020337  033600                CMP     R3,T23RSZ               ;IS R3 OVER MAX RECORD SIZE
5270 032164  002005                        BGE     120$                    ;IF RECORD SIZE IS TOO BIG QUIT
5271 032166  020327  177776                CMP     R3,#65534.              ;END OF SUBTEST MAX RECORD SIZE
5272 032172  001402                        BEQ     120$                    ;BR, IF COMPLETED
5273 032174  000137  031544                JMP     65$                     ;DO MORE RECORDS
5274 032200                        120$:
5275 032200  004737  035054                JSR     PC,T23RT2               ;CLEAN UP PACKET
5276 032204  012737  102010  033550        MOV     #102010,T23PK2          ;REWIND (POSITION) COMMAND
5277 032212  012704  033550                MOV     #T23PK2,R4              ;LOAD R4 WITH PACKET ADDRESS
5278 032216  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE REWIND COMMAND
5279 032222  004737  016426                JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
5280 032226  103407                        BCS     130$                    ;BR, IF TSSR IS OK (GOOD)
5281 032230  010001                        MOV     R0,R1                   ;SAVE TSSR CONTENTS
5282 032232  C05237  002212                INC     FATFLG                  ;BUMP COUNT
5286 032236                                ERRHRD  ERRNO,T23RWN,PKTSSR     ;TSSR IS INCORRECT AFTER REWIND
     032236  104456                                                                TRAP    C$ERHRD
     032240  000500                                                                .WORD   320
     032242  034076                                                                .WORD   T23RWN
     032244  012136                                                                .WORD   PKTSSR
5287 032246                        130$:
5288 032246                                ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     032246                                                                     L10046:
     032246  104403                                                                TRAP    C$ESUB
5289 032250  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
5290 032256  103402                        BLO     999$                            ;BR, IF LESS THAN 25
5291 032260  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
5292 032264                        999$:
5293
5294                                       ;*
5295                                       ;
5296                                       ;TEST 3, SUBTEST 4
5297                                       ;
5298                                       ;VERIFIES THAT A WRITE COMMAND WITH AN ILLEGAL MODE
5299                                       ;FIELD OR AN ILLEGAL BUFFER ADDRESS IS REJECTED WITH
5300                                       ;THE PROPER ERROR STATUS AND THAT TAPE DOES NOT MOVE
5301                                       ;
5302                                       ;
5303                                       ;-
5304
5305 032264                                BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
     032264                                                                     T3.4:
     032264  104402                                                                TRAP    C$BSUB
5306 032266  004737  034762                JSR     PC,T23REST              ;SET COMMAND PACKET
5307 032272  004737  035116                JSR     PC,T23RT3               ;RESTORE PACKET
5308 032276  004737  035054                JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET
5309
5310                                       ;*************************************************************************
5311                                       ;
5312                                       ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
5313                                       ;
5314                                       ;*************************************************************************
5315
```

TEST 3: BASIC WRITE DATA

```
5316 032302  004737  016064                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
5317 032306  103407                        BCS     20$                     ;BR IF INIT WAS OK
5318 032310  005237  002212                INC     FATFLG                  ;BUMP COUNT
5322 032314  010001                        MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
5323 032316                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     032316  104455                                                                TRAP    C$ERDF
     032320  000501                                                                .WORD   321
     032322  003650                                                                .WORD   SFIERR
     032324  012124                                                                .WORD   SFIMSG
5324 032326                          20$:
5325 032326  013737  002172  033460          MOV     UNITN,T23DSW            ;SET DRIVE NUMBER IN PACKET
5326 032334  012704  033440                MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5327
5328                               ;*************************************************************************
5329                               ;
5330                               ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
5331                               ;
5332                               ;*************************************************************************
5333
5334 032340  004737  010752                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5335 032344  103407                        BCS     23$                     ;BR, IF COMMAND ISSUED OK
5336 032346  005237  002212                INC     FATFLG                  ;BUMP COUNT
5340 032352  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5341 032354                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     032354  104456                                                                TRAP    C$ERHRD
     032356  000502                                                                .WORD   322
     032360  005054                                                                .WORD   WRTMSG
     032362  012124                                                                .WORD   SFIMSG
5342
5343                               ;*************************************************************************
5344                               ;
5345                               ;WRITE DATA, ACK, ILLEGAL BITS
5346                               ;
5347                               ;*************************************************************************
5348
5349 032364  012737  104405  033570  23$:   MOV     #104405,T23PK3          ;WRITE DATA, ACK, ILLEGAL BITS
5350 032372  013737  003114  033572        MOV     FREE,T23WB              ;SET UP WRITE BUFFER ADDRESS
5351 032400  062737  000001  033572        ADD     #1,T23WB                ;MAKE ADDRESS ODD (ILLEGAL)
5352 032406  012737  000400  033576        MOV     #256.,T23SZ             ;SET UP BUFFER SIZE
5353 032414  012704  033570                MOV     #T23PK3,R4              ;R4 = POINTER TO PACKET
5354 032420  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5355 032424  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5356 032430  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5357 032434  012702  100206                MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
5358 032440  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
5359 032442  001406                        BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
5360 032444  005237  002212                INC     FATFLG                  ;BUMP COUNT
5364 032450                                ERRHRD  ERRNO,T23TM,PKTSSR      ;TSSR INCORRECT AFTER WRITE COMMAND
     032450  104456                                                                TRAP    C$ERHRD
     032452  000503                                                                .WORD   323
     032454  034022                                                                .WORD   T23TM
     032456  012136                                                                .WORD   PKTSSR
5365 032460                          80$:   CKLOOP                          ;LOOP IF SELECTED
     032460  104406                                                                TRAP    C$CLP1
5366 032462                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     032462                                                                  L10047:
     032462  104403                                                                TRAP    C$ESUB
```

TEST 3: BASIC WRITE DATA

```
5367 032464  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
5368 032472  103402                          BLO     999$                            ;BR, IF LESS THAN 25
5369 032474  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
5370 032500                          999$:
5371
5372                                 ;+
5373                                 ;
5374                                 ;TEST 3, SUBTEST 5
5375                                 ;
5376                                 ;VERIFIES THAT A WRITE DATA COMMAND SPECIFYING A DATA
5377                                 ;BUFFER STARTING IN NONEXISTANT MEMORY TERMINATES WITH
5378                                 ;THE PROPER ERROR STATUS WITHOUT MOVING TAPE
5379                                 ;
5380                                 ;-
5381
5382 032500                          BGNSUB                                  ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
     032500                                                                                  T3.5:
     032500  104402                                                                              TRAP    C$BSUB
5383 032502  005737  003126                  TST     NXMFLG                  ;DO WE HAVE IT?
5384 032506  001002                          BNE     10$                     ;BR, IF  ENOUGH
5385 032510  000137  033030                  JMP     90$                     ;SKIP THIS TEST IF NOT
5386 032514  004737  034762          10$:    JSR     PC,T23REST              ;SET COMMAND PACKET
5387 032520  004737  035116                  JSR     PC,T23RT3               ;RESTORE PACKET
5388 032524  004737  035054                  JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET
5389
5390                                 ;*************************************************************************
5391                                 ;
5392                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
5393                                 ;
5394                                 ;*************************************************************************
5395
5396 032530  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
5397 032534  103407                          BCS     20$                     ;BR IF INIT WAS OK
5398 032536  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5402 032542  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
5403 032544                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     032544  104455                                                                          TRAP    C$ERDF
     032546  000504                                                                          .WORD   324
     032550  003650                                                                          .WORD   SFIERR
     032552  012124                                                                          .WORD   SFIMSG
5404 032554                          20$:
5405 032554  013737  002172  033460          MOV     UNITN,T23DSW            ;SET DRIVE NUMBER UP
5406 032562  012704  033440                  MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5407
5408                                 ;*************************************************************************
5409                                 ;
5410                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
5411                                 ;
5412                                 ;*************************************************************************
5413
5414 032566  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5415 032572  103407                          BCS     123$                    ;BR, IF COMMAND ISSUED OK
5416 032574  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5420 032600  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5421 032602                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     032602  104456                                                                          TRAP    C$ERHRD
     032604  000505                                                                          .WORD   325
```

TEST 3: BASIC WRITE DATA

```
032606  005054                                                          .WORD   WRTMSG
032610  012124                                                          .WORD   SFIMSG
5422
5423                            ;*************************************************************************
5424                            ;
5425                            ;WRITE DATA, ACK, CVC=1
5426                            ;
5427                            ;*************************************************************************
5428
5429 032612                     123$:
5430 032612  005737  002216              TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
5431 032616  001026                      BNE     130$                    ;BR IF SWITCH IS ON
5432 032620  005237  002216              INC     EXTFEA                  ;ONLY ONE TIME
5433 032624  112737  000200  033603      MOVB    #200,T23BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
5434 032632  112737  000010  033602      MOVB    #10,T23BSO              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
5435 032640  012704  033550              MOV     #T23PK2,R4              ;WRITE SUBSYS MEM PACKET
5436 032644  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5437 032650  004737  016426              JSR     PC,CHKTSSR              ;WAIT FOR SSR
5438 032654  103407                      BCS     130$                    ;BR, IF NO ERROR
5439 032656  010001                      MOV     R0,R1                   ;ERROR, SAVE TSSR
5440 032660  005237  002212              INC     FATFLG                  ;BUMP COUNT
5444 032664                              ERRHRD  ERRNO,T22SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
032664  104456                                                          TRAP    C$ERHRD
032666  000506                                                          .WORD   326
032670  027200                                                          .WORD   T22SSR
032672  012136                                                          .WORD   PKTSSR
5445 032674                     130$:   CKLOOP                          ;LOOP IF SELECTED
032674  104406                                                          TRAP    C$CLP1
5446
5447 032676  012701  160000              MOV     #160000,R1              ;NXM LOW ADDRESS START
5448 032702  012702  177776              MOV     #177776,R2              ;LIMIT CHECK FOR NXM (HIGHEST)
5449 032706  004737  016466              JSR     PC,XNXM                 ;LOOK FOR NXM ADDRESS
5450 032712  103045                      BCC     80$                     ;BR, IF NON FOUND
5451 032714  010137  003130              MOV     R1,NXMLO                ;SET ADDRESS UP FOR TEST
5452
5453
5454 032720  005037  033574              CLR     T23WB+2                 ;CLEAR OUT THE HIGH BITS AREA
5455 032724                     24$:
5456 032724  012737  140005  033570      MOV     #140005,T23PK3          ;WRITE DATA, ACK, CVC=1
5457 032732  013737  003130  033572      MOV     NXMLO,T23WB             ;SET UP WRITE BUFFER ADDRESS
5458 032740  012737  000100  033576      MOV     #64.,T23SZ              ;SET UP BUFFER SIZE
5459 032746  012704  033570              MOV     #T23PK3,R4              ;R4 = POINTER TO PACKET
5460 032752  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5461 032756  004737  016340              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5462 032762  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5463 032766  012702  104210              MOV     #SC!NXM!SSR!BIT3,R2     ;SET UP EXPECTED
5464 032772  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
5465 032774  001414                      BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
5466 032776  005237  033574              INC     T23WB+2                 ;BUMP TO NEXT ADDRESS BIT
5467 033002  023727  033574  000004      CMP     T23WB+2,#4              ;CHECK TO SEE IF OVERFLOW INTO 19 BIT
5468 033010  001345                      BNE     24$                     ;BR, IF BITS 17 AND 18
5469 033012  005237  002212      25$:    INC     FATFLG                  ;BUMP COUNT
5473 033016                              ERRHRD  ERRNO,T23TM,PKTSSR      ;TSSR INCORRECT AFTER WRITE COMMAND
033016  104456                                                          TRAP    C$ERHRD
033020  000507                                                          .WORD   327
033022  034022                                                          .WORD   T23TM
033024  012136                                                          .WORD   PKTSSR
```

TEST 3: BASIC WRITE DATA

```
5474 033026                          80$:    CKLOOP                          ;LOOP IF SELECTED
     033026  104406                                                                  TRAP    C$CLP1
5475 033030                          90$:
5476 033030                                  ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     033030                                                                          L10050:
     033030  104403                                                                  TRAP    C$ESUB
5477 033032  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
5478 033040  103402                          BLO     999$                            ;BR, IF LESS THAN 25
5479 033042  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
5480 033046                          999$:
5481
5482                                 ;+
5483                                 ;
5484                                 ;TEST 3, SUBTEST 6
5485                                 ;
5486                                 ;VERIFIES THAT A WRITE DATA COMMAND SPECIFYING A DATA
5487                                 ;BUFFER STARTING IN EXISTANT MEMORY BUT RUNNING INTO
5488                                 ;NONEXISTENT MEMORY TERMINATES WITH THE PROPER ERROR
5489                                 ;STATUS. A LARGE ENOUGH RECORD SIZE IS SPECIFIED SUCH
5490                                 ;THAT TAPE IS ACTUALLY MOVED AND WRITTEN.
5491                                 ;-
5492
5493 033046                                  BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
     033046                                                                          T3.6:
     033046  104402                                                                  TRAP    C$BSUB
5494 033050  005737  003126                  TST     NXMFLG                  ;DO WE HAVE IT?
5495 033054  001002                          BNE     10$                     ;BR, IF  ENOUGH
5496 033056  000137  033374                  JMP     130$                    ;SKIP THIS TEST IF NOT
5497 033062  004737  035116          10$:    JSR     PC,T23RT3               ;RESTORE PACKET
5498 033066  004737  034762                  JSR     PC,T23REST              ;SET COMMAND PACKET
5499 033072  004737  035054                  JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET
5500
5501                                 ;*************************************************************
5502                                 ;
5503                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
5504                                 ;
5505                                 ;*************************************************************
5506
5507 033076  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
5508 033102  103407                          BCS     20$                     ;BR IF INIT WAS OK
5509 033104  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5513 033110  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
5514 033112                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     033112  104455                                                                  TRAP    C$ERDF
     033114  000510                                                                  .WORD   328
     033116  003650                                                                  .WORD   SFIERR
     033120  012124                                                                  .WORD   SFIMSG
5515 033122                          20$:
5516 033122  013737  002172  033460          MOV     UNITN,T23DSW            ;SET DRIVE NUMBER IN PACKET
5517 033130  012704  033440                  MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5518
5519                                 ;*************************************************************
5520                                 ;
5521                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
5522                                 ;
5523                                 ;*************************************************************
5524
```

TEST 3: BASIC WRITE DATA

```
5525 033134  004737  010752                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5526 033140  103407                        BCS     23$                     ;BR, IF COMMAND ISSUED OK
5527 033142  005237  002212                INC     FATFLG                  ;BUMP COUNT
5531 033146  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5532 033150                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     033150  104456                                                                TRAP    C$ERHRD
     033152  000511                                                                .WORD   329
     033154  005054                                                                .WORD   WRTMSG
     033156  012124                                                                .WORD   SFIMSG
5533
5534                                ;*************************************************************************
5535                                ;
5536                                ;WRITE DATA, ACK,CVC=1
5537                                ;
5538                                ;*************************************************************************
5539
5540 033160                         23$:
5541 033160  012701  160000                    MOV     #160000,R1              ;NXM LOW ADDRESS START
5542 033164  C12702  177776                    MOV     #177776,R2              ;LIMIT CHECK FOR NXM (HIGHEST)
5543 033170  004737  016466                    JSR     PC,XNXM                 ;LOOK FOR NXM ADDRESS
5544 033174  103051                            BCC     80$                     ;BR, IF NON FOUND
5545 033176  010137  003130                    MOV     R1,NXMLO                ;SET ADDRESS UP FOR TEST
5546 033202  012737  000000  033574            MOV     #0,T23WB+2              ;SET TO 16 BIT ADDRESS
5547 033210                         24$:
5548 033210  012737  140005  033570            MOV     #140005,T23PK3          ;WRITE DATA, ACK,CVC=1
5549 033216  013701  003130                    MOV     NXMLO,R1                ;HIGHEST MEMORY ADDRESS LOW BITS
5550 033222  162701  000500                    SUB     #500,R1                 ;SET ADDRESS A LITTLE LOWER
5551 033226  010137  033572                    MOV     R1,T23WB                ;LOAD INTO THE PACKET
5552 033232  012737  000000  033576            MOV     #0.,T23SZ               ;SET UP BUFFER SIZE (64K BYTES)
5553 033240  012704  033570                    MOV     #T23PK3,R4              ;R4 = POINTER TO PACKET
5554 033244  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5555 033250  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5556 033254  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5557 033260  012702  104210                    MOV     #SC!NXM!SSR!BIT3,R2     ;SET UP EXPECTED
5558 033264  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
5559 033266  001414                            BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
5560 033270  005237  033574                    INC     T23WB+2                 ;BUMP TO NEXT ADDRESS RANGE
5561 033274  023727  033574  000004            CMP     T23WB+2,#4              ;CHECK TO SEE IF WE WENT TO HIGH
5562 033302  001342                            BNE     24$                     ;BR, IF NO OVER FLOW
5563 033304  005237  002212          25$:      INC     FATFLG                  ;BUMP COUNT
5567 033310                                    ERRHRD  ERRNO,T23TM,PKTSSR      ;TSSR INCORRECT AFTER WRITE COMMAND
     033310  104456                                                                TRAP    C$ERHRD
     033312  000512                                                                .WORD   330
     033314  034022                                                                .WORD   T23TM
     033316  012136                                                                .WORD   PKTSSR
5568 033320                         80$:      CKLOOP                          ;LOOP IF SELECTED
     033320  104406                                                                TRAP    C$CLP1
5569 033322  004737  035054                    JSR     PC,T23RT2               ;CLEAN UP PACKET
5570 033326  004737  035116                    JSR     PC,T23RT3               ;RESTORE PACKET
5571 033332  012737  102010  033550            MOV     #102010,T23PK2          ;REWIND (POSITION) COMMAND
5572 033340  012704  033550                    MOV     #T23PK2,R4              ;LOAD R4 WITH PACKET ADDRESS
5573 033344  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE REWIND COMMAND
5574 033350  004737  016426                    JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
5575 033354  103407                            BCS     130$                    ;BR, IF TSSR IS OK (GOOD)
5576 033356  010001                            MOV     R0,R1                   ;SAVE TSSR CONTENTS
5577 033360  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5581 033364                                    ERRHRD  ERRNO,T23RWN,PKTSSR     ;TSSR IS INCORRECT AFTER REWIND
```

TEST 3: BASIC WRITE DATA

```
        033364  104456                                                          TRAP    C$ERHRD
        033366  000513                                                          .WORD   331
        033370  034076                                                          .WORD   T23RWN
        033372  012136                                                          .WORD   PKTSSR
  5582  033374                          130$:
  5583  033374                                  ENDSUB                  ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
        033374                                                                  L10051:
        033374  104403                                                          TRAP    C$ESUB
  5584  033376  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
  5585  033404  103402                          BLO     999$                    ;BR, IF LESS THAN 25
  5586  033406  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
  5587  033412                          999$:
  5588  033412  004737  016546                  JSR     PC,TSTLOOP      ;DO WE NEED TO ITERATE TEST
  5589  033416  103002                          BCC     163$            ;BR, IF NO LOOP REQUIRED
  5590  033420  000137  030222                  JMP     T23LOOP         ;EXECUTE AGAIN
  5591  033424                          163$:
  5592  033424                                  EXIT    TST             ;ALL DONE THIS TEST
        033424  104432                                                          TRAP    C$EXIT
        033426  C01702                                                          .WORD   L10043-.
  5593
  5594                                  ;*
  5595                                  ;LOCAL STORAGE FOR THIS TEST
  5596                                  ;-
  5598  033430                                  .BLKB   10-<.-TSV2&7>
  5600  033440                          T23PACKET:                      ;COMMAND PACKET FOR TEST
  5601  033440  100004                          .WORD   100004          ;WRITE CHARACTERISTICS COMMAND, WITH ACK
  5602  033442  033450                          .WORD   T23DATA         ;ADDRESS OF CHARACTERISTICS BLOCK
  5603  033444  000000                          .WORD   0
  5604  033446  000010                          .WORD   8.              ;STARTING VALUE OF BLOCK SIZE
  5605  033450                          T23DATA:                        ;CHARACTERISTICS DATA BLOCK
  5606  033450  033462                          .WORD   T23BFR          ;ADDRESS OF MESSAGE BUFFER
  5607  033452  000000                          .WORD   0
  5608  033454  000012                          .WORD   10.             ;LENGTH OF MESSAGE BUFFER
  5609  033456  000000                          .WORD   0
  5610  033460  000000                  T23DSW: .WORD   0               ;SELECT DRIVE 0
  5611  033462                          T23BFR: .BLKW   25.             ;MESSAGE BUFFER
  5612                                  ;
  5613                                  ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
  5614                                  ;
  5616  033544                                  .BLKB   10-<.-TSV2&7>
  5618  033550                          T23PK2:
  5619  033550  100006                          .WORD   100006          ;WRITE SUB SYS MEM COMMAND, AND ACK
  5620  033552  033602                          .WORD   T23BF2          ;ADDRESS OF SELECT BLOCK DATA
  5621  033554  000000                          .WORD   0
  5622  033556  000006                          .WORD   6.              ;SIZE OF DATA PACKET
  5623
  5625  033560                                  .BLKB   10-<.-TSV2&7>
  5627  033570                          T23PK3:
  5628  033570  100005                          .WORD   100005          ;WRITE COMMAND,  AND ACK
  5629  033572  000000                  T23WB:  .WORD   0               ;ADDRESS OF WRITE BUFFER
  5630  033574  000000                          .WORD   0
  5631  033576  000000                  T23SZ:  .WORD   0               ;SIZE OF BUFFER (EXTENT)
  5632                                          .EVEN
  5633                                  ;
  5634  033600  000000                  T23RSZ: .WORD   0               ;LARGEST TAPE RECORD IN BYTES
  5635                                  ;
  5636                                  ;
```

TEST 3: BASIC WRITE DATA

```
5637 033602                          T23BF2:
5638 033602     010                  T23BS0: .BYTE   10                      ;BSEL0 AREA
5639 033603     200                  T23BS1: .BYTE   200                     ;BSEL1 AREA
5640 033604  000000                  T23S2:  .WORD   0                       ;SEL 2 AREA
5641 033606  000000                  T23S3:  .WORD   0                       ;DATA AREA
5642                                 ;
5643                                 ;
5644 033610  000000                  T23TMP: .WORD   0                       ;TEMPORARY REGISTER
5645 033612  000000                  T23WRT: .WORD   0                       ;RETRY COMMAND
5646                                 ;
5647                                         .EVEN
5648                                 ;TAPE MOTION PACKET COMMAND VALUES
5649
5650 033614  100005                  T23WD:  .WORD   100005                  ;WRITE DATA (NEXT)
5651 033616  100405                  T23WDR: .WORD   100405                  ;WRITE DATA RETRY
5652 033620  102005                  T23CON: .WORD   102005                  ;WRITE CONTINOUS
5653 033622  177777                          .WORD   177777                  ;END OF DATA
5654
5655                                 ;+
5656                                 ;LOCAL TEXT MESSAGES FOR TEST
5657                                 ;-
5658
5659 033624     127     122     111  T23SSR: .ASCIZ  'WRITE Command Not Accepted'
5660 033657     105     117     124  T23ET:  .ASCIZ  'EOT Not Found In 12000 4k Writes, (Use Shorter Tape)'
5661 033744     127     122     111  T23EOT: .ASCIZ  'WRITE DATA OVER EOT GAVE NO TAPE STATUS ALERT'
5662 034022     124     123     123  T23TM:  .ASCIZ  'TSSR Not Correct After WRITE Command Reject'
5663 034076     122     145     167  T23RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
5664 034145     122     101     115  T23RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
5665 034220     124     123     123  T23AM3: .ASCIZ  'TSSR Init. Failed After WRITE Command'
5666 034266     104     162     151  T23OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
5667 034341     124     123     123  T23WDD: .ASCIZ  'TSSR Not Correct After WRITE DATA Command, SWB Bit Set'
5668 034430     124     123     123  T23WDC: .ASCIZ  'TSSR Not Correct After WRITE DATA Command, Check For Tape Offline'
5669 034532     103     126     103  T23VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
5670 034605     124     123     102  T23BA:  .ASCIZ  'TSBA Not Correct After WRITE DATA Command'
5671 034657     127     122     111  T23WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
5672 034746     102     141     163  TST23ID:        .ASCIZ  'Basic Write'
5673                                         .EVEN
5674                                 ;+
5675                                 ;
5676                                 ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
5677                                 ;WRITE SUBSYSTEM MEMORY COMMAND
5678                                 ;
5679                                 ;-
5680
5681 034762                          T23REST:
5682 034762                                  SAVREG                          ;SAVE THE REGISTERS
5683 034766  012701  033440                  MOV     @T23PACKET,R1           ;START OF THE PACKET
5684 034772  012721  100004                  MOV     @100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK
5685 034776  012721  033450                  MOV     @T23DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
5686 035002  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
5687 035004  012721  000012                  MOV     @10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
5688 035010  012721  033462                  MOV     @T23BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
5689 035014  005021                          CLR     (R1)+
5690 035016  012721  000024                  MOV     @20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
5691 035022  005021                          CLR     (R1)+
5692 035024  012711  000000                  MOV     @0,(R1)                 ;SELECT DRIVE ZERO
5693 035030  012702  000030                  MOV     @24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
```

TEST 3: BASIC WRITE DATA

```
5694 035034  012762  177777  033462  64$:    MOV     #177777,T23BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
5695 035042  005742                          TST     -(R2)                   ;BUMP DOWN TO NEXT LOCATION
5696 035044  020227  000000                  CMP     R2,#0                   ;R2 AT ZERO YET
5697 035050  001371                          BNE     64$                     ;KEEP GOING UNTIL DONE
5698 035052  000207                          RTS     PC                      ;RETURN
5699
5700
5701 035054                           T23RT2:
5702 035054                                   SAVREG                          ;SAVE THE REGISTERS
5703 035060  012701  033550                  MOV     #T23PK2,R1              ;START OF THE PACKET
5704 035064  012721  100006                  MOV     #100006.,(R1)+          ;WRITE SUBSYSTEM MEM. WITH ACK
5705 035070  012721  033602                  MOV     #T23BF2,(R1)+           ;ADDRESS OF DATA BLOCK
5706 035074  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
5707 035076  012721  000006                  MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
5708 035102  012701  033602                  MOV     #T23BF2,R1              ;POINT TO DATA SEL AREA
5709 035106  005021                          CLR     (R1)+
5710 035110  005021                          CLR     (R1)+
5711 035112  005011                          CLR     (R1)
5712 035114  000207                          RTS     PC                      ;RETURN
5713 035116                           T23RT3:
5714 035116                                   SAVREG                          ;SAVE THE REGISTERS
5715 035122  012701  033570                  MOV     #T23PK3,R1              ;START OF THE PACKET
5716 035126  012721  100005                  MOV     #100005,(R1)+           ;WRITE  TAPE. WITH ACK
5717 035132  005021                          CLR     (R1)+                   ;ADDRESS OF DATA BLOCK
5718 035134  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
5719 035136  005011                          CLR     (R1)                    ;SIZE OF DATA BLOCK
5720 035140  000207                          RTS     PC                              ;RETURN
5721                                  ;+
5722                                  ;
5723                                  ;ROUTINE TO RETRY WRITE DATA IN CASE OF BAD TAPE FOR TEST
5724                                  ;3,SUBTEST 2 & 3
5725                                  ;
5726                                  ;INPUTS:        R1=TSSR
5727                                  ;               SUBROUTINE SETS UP T23WRT FOR RETRY
5728                                  ;-
5729
5730 035142                           T23CHK:
5731 035142                                   SAVREG                          ;SAVE THE REGISTERS
5732 035146  005037  033610                  CLR     T23TMP                  ;CLEAR LOCAL REGISTER
5733 035152  032701  100000                  BIT     #SC,R1                  ;IS SC SET IN TSSR?
5734 035156  001452                          BEQ     FATAL                   ;NO, YOU GOT PROBLEMS!
5735 035160  013702  033472                  MOV     T23BFR+10,R2            ;YES,GET XSTAT1
5736 035164  032702  000002                  BIT     #X1.UNC,R2              ;IS UNC SET IN XSTAT1?
5737 035170  001401                          BEQ     1$                      ;NO, CHECK COR
5738 035172  000405                          BR      RETRY                   ;YES,DO WRITE DATA RETRY
5739 035174  032702  020000          1$:     BIT     #X1.COR,R2              ;IS COR SET IN XSTAT1 THEN?
5740 035200  001002                          BNE     RETRY                   ;YES SO RETRY
5741 035202  000440                          BR      FATAL                   ;NO, YOU GOT PROBLEMS
5742 035204  000207                  EXIT:   RTS     PC                      ;RETURN
5743
5744 035206                           RETRY:
5745 035206  012703  000024          2$:     MOV     #20.,R3                 ;STARTING RECORD SIZE
5746 035212  013737  003114  033572          MOV     FREE,T23WB              ;STARTING WRITE BUFFER ADDRESS
5747 035220  012737  033612  033570          MOV     #T23WRT,T23PK3          ;WRITE DATA RETRY COMMAND SETUP BY SUBROUTINE
5748 035226  012704  033570                  MOV     #T23PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5749 035232  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
5750 035234  004737  017512                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
```

TEST 3: BASIC WRITE DATA

```
5751 035240  010337  033576                    MOV     R3,T23SZ                ;SET UP RECORD SIZE IN PACKET
5752 035244  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5753 035250  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5754 035254  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5755 035260  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
5756 035264  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
5757 035266  001746                            BEQ     EXIT                    ;BR, IF OK
5758 035270  005237  033610                    INC     T23TMP                  ;TRY FIVE TIMES THEN EXIT
5759 035274  022737  000005  033610            CMP     #5,T23TMP               ;DONE FIVE YET?
5760 035302  001341                            BNE     2$                      ;NO GO AGAIN
5761 035304  005237  002212          FATAL:    INC     FATFLG                  ;BUMP COUNT
5765 035310  013702  033462                    MOV     T23BFR,R2               ;LOW ORDER MSGBUF
5766 035314                                    ERRHRD  ERRNO,SCHERR,PKTMES     ;TSSR INCORRECT AFTER WRITE DATA
     035314  104456                                                                    TRAP    C$ERHRD
     035316  000514                                                                    .WORD   332
     035320  005276                                                                    .WORD   SCHERR
     035322  012200                                                                    .WORD   PKTMES
5767 035324  004737  017272                    JSR     PC,CKDROP               ;DROP THE UNIT
5768 035330                                    ENDTST
     035330                                                                 L10043:
     035330  104401                                                               TRAP    C$ETST
5769
5770                                           .SBTTL  TEST 4: BASIC READ DATA (FORWARD AND REVERSE)
5771                                   ;+
5772                                   ;
5773                                   ;THIS TEST VERIFIES THAT THE READ FORWARD AND READ REVERSE
5774                                   ;COMMANDS OPERATE PROPERLY. VARIOUS COMBINATIONS OF ODD AND EVEN
5775                                   ;DATA BUFFER BOUNDARIES, RECORD SIZES (UP TO 64K BYTES IF MEMORY
5776                                   ;SPACE IS AVAILIABLE), AND BYTE-SWAP CONTROL ARE USED. THIS TEST
5777                                   ;OF COURSE, FURTHER VERIFIES THE WRITE DATA COMMAND BY ACTUALLY
5778                                   ;READING AND VERIFYING WRITTEN DATA. ALSO TESTED ARE PROPER
5779                                   ;TERMINATIONS ON EXCEPTIONAL OR ERROR CONDITIONS: RECORD LENGTH
5780                                   ;LONG, RECORD LENGTH SHORT, READ REVERSE AT BOT, ILLEGAL DATA
5781                                   ;BUFFER ADDRESSES, ILLEGAL CODES IN THE MODE FIELD OF THE BASIC
5782                                   ;READ COMMAND, AND DATA BUFFERS IN NON-EXISTANT MEMORY. THE TEST
5783                                   ;
5784                                   ;
5785                                   ;THE TEST CONSISTS OF THE FOLLOWING 14 SUBTESTS
5786                                   ;
5787                                   ;
5788                                   ;
5789                                   ;-
5790 035332                                    BGNTST
     035332                                                                     T4::
5791 035332  012737  006356  002170            MOV     #EPRT1,EPRTSW           ;SET UP PRIMARY ERROR MESSAGE
5792 035340  005037  003124                    CLR     KTENABLE                ;TURN OFF KT11
5793 035344  004737  017364                    JSR     PC,KTOFF                ;TURN KT11 OFF
5798 035350  012700  047342                    MOV     #TST24ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
5799 035354  004737  016600                    JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
5800 035360  004737  022206                    JSR     PC,MEMCK                ;CHECK FOR MEMORY
5801 035364  005037  003126                    CLR     NXMFLG                  ;SET FLAG
5802 035370  012737  000005  002206            MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
5803                                   ;+
5804                                   ;
5805                                   ;TEST 4, SUBTEST 1
5806                                   ;
5807                                   ;
```

TEST  4: BASIC READ DATA (FORWARD AND REVERSE)

```
                                        ;VERIFIES THAT A READ DATA COMMAND WITH THE CLEAR
                                        ;VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF THE
                                        ;VOLUME CHECK (VCK) IS SET. ALL LEGAL
                                        ;COMBINATIONS OF THE COMMAND MODE FIELD ARE TESTED
                                        ;(I.E., IT IS VERIFIED THAT THE COMMAND IS REJECTED
                                        ;DUE TO VCK BEING SET RATHER THAN ERRONEOUS DECODING
                                        ;OF THE MODE FIELD.
                                        ;
                                        ;
                                        ;-

035376                                  T24LOOP:
035376                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
035376                                                                                  T4.1:
035376  104402                                                                          TRAP    C$BSUB
035400  004737  047410                          JSR     PC,T24REST              ;SET COMMAND PACKET
035404  004737  047544                          JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
035410  004737  047502                          JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
035414  C12737  176750  045076                  MOV     #65000.,T24DLY          ;LOAD UP DELAY ROUTINE

                                        ;*************************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*************************************************************************

035422  004737  016064                  5$:     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
035426  103426                                  BCS     20$                     ;BR IF INIT WAS OK
035430                                          DELAY   250                     ;DELAY AWHILE
035430  012727  000250                                                                  MOV     #250,(PC)+
035434  000000                                                                          .WORD   0
035436  013727  002116                                                                  MOV     L$DLY,(PC)+
035442  000000                                                                          .WORD   0
035444  005367  177772                                                                  DEC     -6(PC)
035450  001375                                                                          BNE     .-4
035452  005367  177756                                                                  DEC     -22(PC)
035456  001367                                                                          BNE     .-20
035460  005337  045076                          DEC     T24DLY                  ;BUMP DELAY COUNTER
035464  001356                                  BNE     5$                      ;BR, IF MORE DELAY REQUIRED
035466  005237  002212                          INC     FATFLG                  ;BUMP COUNT
035472  010001                                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
035474                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
035474  104455                                                                          TRAP    C$ERDF
035476  000621                                                                          .WORD   401
035500  003650                                                                          .WORD   SFIERR
035502  012124                                                                          .WORD   SFIMSG
035504                                  20$:
035504  012737  000007  044740                  MOV     #7,T24DSW               ;SET DRIVE NUMBER IN PACKET
035512  012704  044720                          MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*************************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*************************************************************************

035516  004737  010752                          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
```

```
035522  103407                          BCS     24$                     ;BR, IF COMMAND ISSUED OK
035524  005237  002212                  INC     FATFLG                  ;BUMP COUNT
035530  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
035532                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
035532  104456                                                                          TRAP    C$ERHRD
035534  000622                                                                          .WORD   402
035536  005054                                                                          .WORD   WRTMSG
035540  012124                                                                          .WORD   SFIMSG
035542  005737  002216          24$:    TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
035546  001044                          BNE     50$                     ;BR IF SWITCH IS ON

035550  112737  000200  045061          MOVB    #200,T24BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
035556  112737  000010  045060          MOVB    #10,T24BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
035564  012704  045030                  MOV     #T24PK2,R4              ;WRITE SUBSYS MEM PACKET
035570  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
035574  004737  016426                  JSR     PC,CHKTSSR              ;WAIT FOR SSR
035600  103407                          BCS     30$                     ;BR, IF NO ERROR
035602  010001                          MOV     R0,R1                   ;ERROR, SAVE TSSR
035604  005237  002212                  INC     FATFLG                  ;BUMP COUNT
035610                                  ERRHRD  ERRNO,T24SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
035610  104456                                                                          TRAP    C$ERHRD
035612  000623                                                                          .WORD   403
035614  045617                                                                          .WORD   T24SSR
035616  012136                                                                          .WORD   PKTSSR
035620                          30$:    CKLOOP                          ;LOOP IF SELECTED
035620  104406                                                                          TRAP    C$CLP1
035622  012737  000007  044740          MOV     #7,T24DSW               ;SET DRIVE NUMBER IN PACKET
035630  012704  044720                  MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                ;*******************************************************************
                                ;
                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                ;
                                ;*******************************************************************

035634  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
035640  103407                          BCS     50$                     ;BR, IF COMMAND ISSUED OK
035642  005237  002212                  INC     FATFLG                  ;BUMP COUNT
035646  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
035650                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
035650  104456                                                                          TRAP    C$ERHRD
035652  000624                                                                          .WORD   404
035654  005054                                                                          .WORD   WRTMSG
035656  012124                                                                          .WORD   SFIMSG
035660                          50$:    CKLOOP                          ;SCOPE LOOP
035660  104406                                                                          TRAP    C$CLP1
035662  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
035666  032701  000100                  BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
035672  001006                          BNE     60$                     ;BR, IF OFFLINE (GOOD)
035674  005237  002212                  INC     FATFLG                  ;BUMP COUNT
035700                                  ERRDF   ERRNO,T24OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
035700  104455                                                                          TRAP    C$ERDF
035702  000625                                                                          .WORD   405
035704  046375                                                                          .WORD   T24OFL
035706  012124                                                                          .WORD   SFIMSG
035710                          60$:    CKLOOP                          ;LOOP IF SELECTED
035710  104406                                                                          TRAP    C$CLP1
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
5904 035712  012703  045066                  MOV     #T24RN,R3               ;POINTER FOR COMMANDS
5905
5906                                ;*************************************************************************
5907                                ;
5908                                ;TAPE READ COMMAND IN PLACE
5909                                ;
5910                                ;*************************************************************************
5911
5912 035716  011337  045050          65$:    MOV     (R3),T24PK3             ;TAPE READ COMMAND IN PLACE
5913 035722  012704  045050                  MOV     #T24PK3,R4              ;R4 = POINTER TO PACKET
5914 035726  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5915 035732  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5916 035736  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5917 035742  012702  100306                  MOV     #SSR!SC!OFL!BIT1!BIT2,R2        ;SET UP EXPECTED
5918 035746  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
5919 035750  001406                          BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
5920 035752  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5924 035756                                  ERRHRD  ERRNO,T24TM,PKTSSR      ;TSSR INCORRECT AFTER TAPE MOTION CMD
     035756  104456                                                                  TRAP    C$ERHRD
     035760  000626                                                                  .WORD   406
     035762  046133                                                                  .WORD   T24TM
     035764  012136                                                                  .WORD   PKTSSR
5925 035766                          80$:    CKLOOP                          ;LOOP IF SELECTED
     035766  104406                                                                  TRAP    C$CLP1
5926 035770  005723                          TST     (R3)+                   ;BUMP TO NEXT COMMAND
5927 035772  022713  177777                  CMP     #177777,(R3)            ;END OF THE COMMANDS YET
5928 035776  001401                          BEQ     90$                     ;BR, IF DONE
5929 036000  000746                          BR      65$                     ;MORE COMMAND(S) TO GO
5930 036002                          90$:
5931 036002                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     036002                                                                         L10053:
     036002  104403                                                                 TRAP    C$ESUB
5932 036004  023727  002212  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
5933 036012  103402                                  BLO     999$                    ;BR, IF LESS THAN 25
5934 036014  004737  017272                          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
5935 036020                          999$:
5936
5937                                ;*
5938                                ;
5939                                ;TEST 4, SUBTEST 2
5940                                ;
5941                                ;VERIFIES THAT READ FORWARD COMMANDS WITH SWB=0
5942                                ;OPERATES PROPERLY. THE TAPE IS FIRST REWOUND AND THEN
5943                                ;WRITTEN WITH A SERIES OF TEST RECORDS VARING IN
5944                                ;LENGTH AND DATA CONTENT. THE TAPE IS THEN REWOUND
5945                                ;AGAIN AND THE RECORD READ SEQUENTIALLY AND RESULTS
5946                                ;(STATUS, DATA, ETC.) VERIFIED. THE BYTE COUNT ON
5947                                ;EACH READ FORWARD COMMAND IS SET TO THE LENGTH OF THE
5948                                ;EXPECTED RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD
5949                                ;OCCUR.
5950                                ;
5951                                ;
5952                                ;
5953                                ;-
5954 036020                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     036020                                                                         T4.2:
     036020  104402                                                                 TRAP    C$BSUB
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
 5955 036022  004737  047544                JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
 5956 036026  004737  047410                JSR     PC,T24REST              ;SET COMMAND PACKET
 5957 036032  004737  047502                JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
 5958
 5959                                ;*************************************************************************
 5960                                ;
 5961                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
 5962                                ;
 5963                                ;*************************************************************************
 5964
 5965 036036  004737  016064                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
 5966 036042  103407                        BCS     20$                     ;BR IF INIT WAS OK
 5967 036044  005237  002212                INC     FATFLG                  ;BUMP COUNT
 5971 036050  010001                        MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
 5972 036052                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      036052  104455                                                                TRAP    C$ERDF
      036054  000627                                                                .WORD   407
      036056  003650                                                                .WORD   SFIERR
      036060  012124                                                                .WORD   SFIMSG
 5973 036062                                20$:
 5974 036062  013737  002172  044740            MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
 5975 036070  012704  044720                MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 5976
 5977                                ;*************************************************************************
 5978                                ;
 5979                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 5980                                ;
 5981                                ;*************************************************************************
 5982
 5983 036074  004737  010752                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 5984 036100  103407                        BCS     24$                     ;BR, IF COMMAND ISSUED OK
 5985 036102  005237  002212                INC     FATFLG                  ;BUMP COUNT
 5989 036106  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 5990 036110                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      036110  104456                                                                TRAP    C$ERHRD
      036112  000630                                                                .WORD   408
      036114  005054                                                                .WORD   WRTMSG
      036116  012124                                                                .WORD   SFIMSG
 5991 036120                                24$:    CKLOOP                  ;LOOP IF SELECTED
      036120  104406                                                                TRAP    C$CLP1
 5992
 5993                                ;*************************************************************************
 5994                                ;
 5995                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 5996                                ;
 5997                                ;*************************************************************************
 5998
 5999 036122  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 6000 036126  103407                        BCS     30$                     ;BR, IF NO PROBLEM
 6001 036130  010001                        MOV     R0,R1                   ;SAVE TSSR
 6002 036132  005237  002212                INC     FATFLG                  ;BUMP COUNT
 6006 036136                                ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
      036136  104456                                                                TRAP    C$ERHRD
      036140  000631                                                                .WORD   409
      036142  046206                                                                .WORD   T24RWN
      036144  012136                                                                .WORD   PKTSSR
 6007 036146                                30$:    CKLOOP                  ;LOOP IF SELECTED
```

```
036146  104406                                                                  TRAP    C$CLP1

                                ;*******************************************************************
                                ;
                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
                                ;
                                ;*******************************************************************

036150  013701  044750                  MOV     T24BFR+6,R1             ;PICK UP XSTO
036154  010102                          MOV     R1,R2                   ;SET UP EXPECTED
036156  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
036162  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
036164  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
036166  005237  002212                  INC     FATFLG                  ;BUMP COUNT
036172                                  ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
036172  104456                                                                  TRAP    C$ERHRD
036174  000632                                                                  .WORD   410
036176  045723                                                                  .WORD   T24BOT
036200  C15564                                                                  .WORD   EXPREC
036202                          40$:    CKLOOP                          ;LOOP IF SELECTED
036202  104406                                                                  TRAP    C$CLP1
036204  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
036210  013737  003114  045052          MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS

                                ;*******************************************************************
                                ;
                                ;WRITE DATA,CVC=1,ACK COMMAND
                                ;
                                ;*******************************************************************

036216  012737  140005  045050          MOV     #140005,T24PK3          ;WRITE DATA,CVC=1,ACK COMMAND
036224  012704  045050                  MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
036230                          65$:
036230  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
036232  004737  017512                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
036236  010337  045056                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
036242  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
036246  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
036252  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
036256  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
036262  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
036264  001406                          BEQ     75$                     ;BR, IF OK
036266  005237  002212                  INC     FATFLG                  ;BUMP COUNT
036272                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
036272  104456                                                                  TRAP    C$ERHRD
036274  000633                                                                  .WORD   411
036276  005111                                                                  .WORD   WRTERR
036300  012136                                                                  .WORD   PKTSSR
036302                          75$:    CKLOOP                          ;LOOP IF SELECTED
036302  104406                                                                  TRAP    C$CLP1
036304  005723                          TST     (R3)+           ;BUMP RECORD SIZE
036306  022703  000414                  CMP     #268.,R3                ;END OF RECORD YET
036312  001346                          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
036314                          80$:    CKLOOP                          ;LOOP IF SELECTED
036314  104406                                                                  TRAP    C$CLP1
036316                          120$:
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
6059                                    ;*************************************************************************
6060                                    ;
6061                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6062                                    ;
6063                                    ;*************************************************************************
6064
6065 036316  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6066 036322  004737  016426                    JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
6067 036326  103407                            BCS     130$                    ;BR, IF NO PROBLEM
6068 036330  010001                            MOV     R0,R1                   ;SAVE TSSR
6069 036332  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6073 036336                                    ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
      036336  104456                                                                    TRAP    C$ERHRD
      036340  000634                                                                    .WORD   412
      036342  046206                                                                    .WORD   T24RWN
      036344  012136                                                                    .WORD   PKTSSR
6074 036346                            130$:   CKLOOP                          ;LOOP IF SELECTED
      036346  104406                                                                    TRAP    C$CLP1
6075
6076                                    ;*************************************************************************
6077                                    ;
6078                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6079                                    ;
6080                                    ;*************************************************************************
6081
6082 036350  013701  044750                    MOV     T24BFR+6,R1             ;PICK UP XST0
6083 036354  010102                            MOV     R1,R2                   ;SET UP EXPECTED
6084 036356  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6085 036362  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
6086 036364  001406                            BEQ     140$                    ;BR, IF EQUAL (OK)
6087 036366  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6091 036372                                    ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      036372  104456                                                                    TRAP    C$ERHRD
      036374  000635                                                                    .WORD   413
      036376  045723                                                                    .WORD   T24BOT
      036400  015564                                                                    .WORD   EXPREC
6092 036402                            140$:   CKLOOP                          ;LOOP IF SELECTED
      036402  104406                                                                    TRAP    C$CLP1
6093 036404  012703  000400                    MOV     #256.,R3                ;RECORD SIZE
6094 036410  013737  003114  045052            MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
6095
6096                                    ;*************************************************************************
6097                                    ;
6098                                    ;READ DATA,CVC=1,ACK COMMAND
6099                                    ;
6100                                    ;*************************************************************************
6101
6102 036416  012737  140001  045050            MOV     #140001,T24PK3          ;READ DATA,CVC=1,ACK COMMAND
6103 036424  012704  045050            165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6104 036430  010337  045056                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
6105 036434  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6106 036440  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6107 036444  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6108 036450  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
6109 036454  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
6110 036456  001406                            BEQ     170$                    ;BR, IF OK
6111 036460  005237  002212                    INC     FATFLG                  ;BUMP COUNT
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
6115 036464                          ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     036464 104456                                                                TRAP    C$ERHRD
     036466 000636                                                                .WORD   414
     036470 005204                                                                .WORD   RDERR
     036472 012136                                                                .WORD   PKTSSR
6116 036474                    170$: CKLOOP                          ;LOOP IF SELECTED
     036474 104406                                                                TRAP    C$CLP1
6117 036476 013702 003114            MOV     FREE,R2               ;GET BUFFER ADDRESS
6118 036502 010304                   MOV     R3,R4                 ;CURRENT RECORD SIZE
6119 036504 162704 000400            SUB     #256.,R4              ;FIRST LOCATION IN BUFFER
6120 036510 060204             173$: ADD     R2,R4                 ;GET LOCATION IN BUFFER (ADDRESS)
6121 036512 021403                   CMP     (R4),R3               ;CHECK DATA READ (R3=DATA ALSO)
6122 036514 001410                   BEQ     180$                  ;BR, IF ALL IS WELL
6123 036516 011401                   MOV     (R4),R1               ;RECD DATA
6124 036520 010302                   MOV     R3,R2                 ;EXPECTED DATA
6125 036522 005237 002212            INC     FATFLG                ;BUMP COUNT
6129 036526                          ERRHRD  ERRNO,T24DTA,EXPREC   ;DATA READ NOT = WRITTEN
     036526 104456                                                                TRAP    C$ERHRD
     036530 000637                                                                .WORD   415
     036532 045770                                                                .WORD   T24DTA
     036534 015564                                                                .WORD   EXPREC
6130 036536                    180$: CKLOOP                          ;LOOP IF SELECTED
     036536 104406                                                                TRAP    C$CLP1
6131 036540 005724                   TST     (R4)+           ;BUMP TO NEXT LOCATION
6132 036542 160204                   SUB     R2,R4           ;GET BACK TO CORRECT SIZE
6133 036544 020403                   CMP     R4,R3                 ;END OF RECORD YET
6134 036546 001360                   BNE     173$                  ;BR, IF NOT AT END OF RECORD
6135 036550 005723                   TST     (R3)+                 ;BUMP RECORD SIZE
6136 036552 022703 000412            CMP     #266.,R3              ;END OF RECORD YET
6137 036556 001322                   BNE     165$                  ;BR, IF MORE RECORDS TO WRITE
6138 036560                    190$: CKLOOP                          ;LOOP IF SELECTED
     036560 104406                                                                TRAP    C$CLP1
6139 036562                          ENDSUB                        ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     036562                                                                       L10054:
     036562 104403                                                                TRAP    C$ESUB
6140 036564 023727 002212 000017     CMP     FATFLG,#15.                   ;IS ERROR COUNT AT 25
6141 036572 103402                   BLO     999$                          ;BR, IF LESS THAN 25
6142 036574 004737 017272            JSR     PC,CKDROP                     ;TRY TO DROP THE UNIT
6143 036600                    999$:
6144
6145                                 ;+
6146                                 ;
6147                                 ;TEST 4, SUBTEST 3
6148                                 ;
6149                                 ;VERIFIES THAT READ DATA COMMANDS WITH CVC=1 AND THE
6150                                 ;SWAP BYTES (SWB) BIT SET OPERATES PROPERLY. THE TEST
6151                                 ;SEQUENCE IS IDENTICAL TO THAT USED IN SUBTEST 2.
6152                                 ;THE RESULTS, EXCEPT FOR RAM CONTENTS, SHOULD BE THE SAME.
6153                                 ;
6154                                 ;
6155                                 ;
6156                                 ;-
6157 036600                          BGNSUB                        ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
     036600                                                                       T4.3:
     036600 104402                                                                TRAP    C$BSUB
6158 036602 004737 047544            JSR     PC,T24RT3             ;SET UP OTHER COMMAND PACKET
6159 036606 004737 047410            JSR     PC,T24REST            ;SET COMMAND PACKET
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
6160 036612  004737  047502                  JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
6161
6162                                ;*************************************************************************
6163                                ;
6164                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
6165                                ;
6166                                ;*************************************************************************
6167
6168 036616  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
6169 036622  103407                          BCS     20$                     ;BR IF INIT WAS OK
6170 036624  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6174 036630  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
6175 036632                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     036632  104455                                                                  TRAP    C$ERDF
     036634  000640                                                                  .WORD   416
     036636  003650                                                                  .WORD   SFIERR
     036640  012124                                                                  .WORD   SFIMSG
6176 036642                                20$:
6177 036642  C13737  002172  044740              MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
6178 036650  012704  044720                      MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
6179
6180                                ;*************************************************************************
6181                                ;
6182                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
6183                                ;
6184                                ;*************************************************************************
6185
6186 036654  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
6187 036660  103407                          BCS     24$                     ;BR, IF COMMAND ISSUED OK
6188 036662  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6192 036666  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
6193 036670                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     036670  104456                                                                  TRAP    C$ERHRD
     036672  000641                                                                  .WORD   417
     036674  005054                                                                  .WORD   WRTMSG
     036676  012124                                                                  .WORD   SFIMSG
6194 036700                                24$:    CKLOOP                          ;LOOP IF SELECTED
     036700  104406                                                                  TRAP    C$CLP1
6195
6196                                ;*************************************************************************
6197                                ;
6198                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6199                                ;
6200                                ;*************************************************************************
6201
6202 036702  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6203 036706  103407                          BCS     30$                     ;BR, IF NO PROBLEM
6204 036710  010001                          MOV     R0,R1                   ;SAVE TSSR
6205 036712  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6209 036716                                  ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     036716  104456                                                                  TRAP    C$ERHRD
     036720  000642                                                                  .WORD   418
     036722  046206                                                                  .WORD   T24RWN
     036724  012136                                                                  .WORD   PKTSSR
6210 036726                                30$:    CKLOOP                          ;LOOP IF SELECTED
     036726  104406                                                                  TRAP    C$CLP1
6211
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
6212                                    ;*************************************************************************
6213                                    ;
6214                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6215                                    ;
6216                                    ;*************************************************************************
6217
6218 036730  013701  044750                    MOV     T24BFR+6,R1             ;PICK UP XST0
6219 036734  010102                            MOV     R1,R2                   ;SET UP EXPECTED
6220 036736  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6221 036742  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
6222 036744  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
6223 036746  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6227 036752                                    ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     036752  104456                                                                    TRAP    C$ERHRD
     036754  000643                                                                    .WORD   419
     036756  045723                                                                    .WORD   T24BOT
     036760  015564                                                                    .WORD   EXPREC
6228 036762                            40$:    CKLOOP                          ;LOOP IF SELECTED
     036762  104406                                                                    TRAP    C$CLP1
6229 036764  012703  000400                    MOV     #256.,R3                ;RECORD SIZE
6230 036770  013737  003114  045052            MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
6231
6232                                    ;*************************************************************************
6233                                    ;
6234                                    ;WRITE DATA,ACK,SWB,CVC=1 COMMAND
6235                                    ;
6236                                    ;*************************************************************************
6237
6238 036776  012737  150005  045050            MOV     #150005,T24PK3          ;WRITE DATA,ACK,SWB,CVC=1 COMMAND
6239 037004  012704  045050                    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6240 037010                            65$:
6241 037010  010300                            MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
6242 037012  004737  017512                    JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
6243 037016  010337  045056                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
6244 037022  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6245 037026  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6246 037032  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6247 037036  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
6248 037042  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
6249 037044  001406                            BEQ     75$                     ;BR, IF OK
6250 037046  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6254 037052                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     037052  104456                                                                    TRAP    C$ERHRD
     037054  000644                                                                    .WORD   420
     037056  005111                                                                    .WORD   WRTERR
     037060  012136                                                                    .WORD   PKTSSR
6255 037062                            75$:    CKLOOP                          ;LOOP IF SELECTED
     037062  104406                                                                    TRAP    C$CLP1
6256 037064  005723                            TST     (R3)+           ;BUMP RECORD SIZE
6257 037066  022703  000414                    CMP     #268.,R3                ;END OF RECORD YET
6258 037072  001346                            BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
6259 037074                            80$:    CKLOOP                          ;LOOP IF SELECTED
     037074  104406                                                                    TRAP    C$CLP1
6260 037076                            120$:
6261
6262                                    ;*************************************************************************
6263                                    ;
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
6264                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6265                                    ;
6266                                    ;*************************************************************************
6267
6268 037076  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6269 037102  103407                            BCS     130$                    ;BR, IF NO PROBLEM
6270 037104  010001                            MOV     R0,R1                   ;SAVE TSSR
6271 037106  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6275 037112                                    ERRHRD  ERRNO,T24RWN,EXPREC     ;REWIND NOT ACCEPTED
     037112  104456                                                            TRAP    C$ERHRD
     037114  000645                                                            .WORD   421
     037116  046206                                                            .WORD   T24RWN
     037120  015564                                                            .WORD   EXPREC
6276 037122                            130$:   CKLOOP                          ;LOOP IF SELECTED
     037122  104406                                                            TRAP    C$CLP1
6277
6278                                    ;*************************************************************************
6279                                    ;
6280                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6281                                    ;
6282                                    ;*************************************************************************
6283
6284 037124  013701  044750                    MOV     T24BFR+6,R1             ;PICK UP XST0
6285 037130  010102                            MOV     R1,R2                   ;SET UP EXPECTED
6286 037132  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6287 037136  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
6288 037140  001406                            BEQ     140$                    ;BR, IF EQUAL (OK)
6289 037142  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6293 037146                                    ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     037146  104456                                                            TRAP    C$ERHRD
     037150  000646                                                            .WORD   422
     037152  045723                                                            .WORD   T24BOT
     037154  015564                                                            .WORD   EXPREC
6294 037156                            140$:   CKLOOP                          ;LOOP IF SELECTED
     037156  104406                                                            TRAP    C$CLP1
6295 037160  012703  000400                    MOV     #256.,R3                ;RECORD SIZE
6296 037164  013737  003114  045052            MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
6297
6298                                    ;*************************************************************************
6299                                    ;
6300                                    ;READ DATA,IE,ACK,SWB COMMAND
6301                                    ;
6302                                    ;*************************************************************************
6303
6304 037172  012737  110001  045050            MOV     #110001,T24PK3          ;READ DATA,IE,ACK,SWB COMMAND
6305 037200  012704  045050            165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6306 037204  010337  045056                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
6307 037210  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6308 037214  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6309 037220  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6310 037224  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
6311 037230  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
6312 037232  001406                            BEQ     170$                    ;BR, IF OK
6313 037234  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6317 037240                                    ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     037240  104456                                                            TRAP    C$ERHRD
     037242  000647                                                            .WORD   423
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
        037244  005204                                                          .WORD   RDERR
        037246  012136                                                          .WORD   PKTSSR
 6318   037250                  170$:   CKLOOP                          ;LOOP IF SELECTED
        037250  104406                                                          TRAP    C$CLP1
 6319   037252  013702  003114          MOV     FREE,R2                 ;GET BUFFER ADDRESS
 6320   037256  010304                  MOV     R3,R4                   ;CURRENT RECORD SIZE
 6321   037260  162704  000400          SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
 6322   037264  060204          173$:   ADD     R2,R4                   ;GET LOCATION IN BUFFER (ADDRESS)
 6323   037266  021403                  CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
 6324   037270  001410                  BEQ     180$                    ;BR, IF ALL IS WELL
 6325   037272  011401                  MOV     (R4),R1                 ;RECD DATA
 6326   037274  010302                  MOV     R3,R2                   ;EXPECTED DATA
 6327   037276  005237  002212          INC     FATFLG                  ;BUMP COUNT
 6331   037302                  ERRHRD  ERRNO,T24DTA,EXPREC             ;DATA READ NOT = WRITTEN
        037302  104456                                                          TRAP    C$ERHRD
        037304  000650                                                          .WORD   424
        037306  045770                                                          .WORD   T24DTA
        037310  015564                                                          .WORD   EXPREC
 6332   037312                  180$:   CKLOOP                          ;LOOP IF SELECTED
        037312  104406                                                          TRAP    C$CLP1
 6333   037314  005724                  TST     (R4)+                   ;BUMP TO NEXT LOCATION
 6334   037316  160204                  SUB     R2,R4                   ;SET SIZE TO CORRECT VALUE
 6335   037320  020403                  CMP     R4,R3                   ;END OF RECORD YET
 6336   037322  001360                  BNE     173$                    ;BR, IF NOT AT END OF RECORD
 6337   037324  005723                  TST     (R3)+                   ;BUMP RECORD SIZE
 6338   037326  022703  000412          CMP     #266.,R3                ;END OF RECORD YET
 6339   037332  001322                  BNE     165$                    ;BR, IF MORE RECORDS TO WRITE
 6340   037334                  190$:   CKLOOP                          ;LOOP IF SELECTED
        037334  104406                                                          TRAP    C$CLP1
 6341   037336                          ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
        037336                                                                  L10055:
        037336  104403                                                          TRAP    C$ESUB
 6342   037340  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
 6343   037346  103402                          BLO     999$                    ;BR, IF LESS THAN 25
 6344   037350  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
 6345   037354                  999$:
 6346
 6347                           ;+
 6348                           ;
 6349                           ;TEST 4, SUBTEST 4
 6350                           ;
 6351                           ;VERIFIES THAT A READ FORWARD COMMAND READING A RECORD
 6352                           ;LONGER THAN THE SPECIFIED BYTE COUNT CAUSES TAPE
 6353                           ;STATUS ALERT TERMINATION WITH THE RECORD LENGTH LONG
 6354                           ;(RLL) BIT SET.
 6355                           ;
 6356                           ;
 6357                           ;-
 6358
 6359   037354                          BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
        037354                                                                  T4.4:
        037354  104402                                                          TRAP    C$BSUB
 6360   037356  004737  047544          JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
 6361   037362  004737  047410          JSR     PC,T24REST              ;SET COMMAND PACKET
 6362   037366  004737  047502          JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
 6363
 6364                           ;******************************************************************************
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
6365                                    ;
6366                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
6367                                    ;
6368                                    ;*************************************************************************
6369
6370 037372  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
6371 037376  103407                            BCS     20$                     ;BR IF INIT WAS OK
6372 037400  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6376 037404  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
6377 037406                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      037406  104455                                                                    TRAP    C$ERDF
      037410  000651                                                                    .WORD   425
      037412  003650                                                                    .WORD   SFIERR
      037414  012124                                                                    .WORD   SFIMSG
6378 037416                            20$:
6379 037416  013737  002172  044740            MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
6380 037424  012704  044720                    MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
6381
6382                                    ;*************************************************************************
6383                                    ;
6384                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
6385                                    ;
6386                                    ;*************************************************************************
6387
6388 037430  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
6389 037434  103407                            BCS     24$                     ;BR, IF COMMAND ISSUED OK
6390 037436  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6394 037442  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
6395 037444                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      037444  104456                                                                    TRAP    C$ERHRD
      037446  000652                                                                    .WORD   426
      037450  005054                                                                    .WORD   WRTMSG
      037452  012124                                                                    .WORD   SFIMSG
6396 037454                            24$:    CKLOOP                          ;LOOP IF SELECTED
      037454  104406                                                                    TRAP    C$CLP1
6397
6398                                    ;*************************************************************************
6399                                    ;
6400                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6401                                    ;
6402                                    ;*************************************************************************
6403
6404 037456  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6405 037462  103407                            BCS     30$                     ;BR, IF NO PROBLEM
6406 037464  010001                            MOV     R0,R1                   ;SAVE TSSR
6407 037466  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6411 037472                                    ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
      037472  104456                                                                    TRAP    C$ERHRD
      037474  000653                                                                    .WORD   427
      037476  046206                                                                    .WORD   T24RWN
      037500  012136                                                                    .WORD   PKTSSR
6412 037502                            30$:    CKLOOP                          ;LOOP IF SELECTED
      037502  104406                                                                    TRAP    C$CLP1
6413
6414                                    ;*************************************************************************
6415                                    ;
6416                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
6417                                    ;
6418                                    ;*************************************************************************
6419
6420 037504  013701  044750                    MOV     T24BFR+6,R1             ;PICK UP XSTO
6421 037510  010102                            MOV     R1,R2                   ;SET UP EXPECTED
6422 037512  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6423 037516  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
6424 037520  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
6425 037522  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6429 037526                                    ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     037526  104456                                                                    TRAP    C$ERHRD
     037530  000654                                                                    .WORD   428
     037532  045723                                                                    .WORD   T24BOT
     037534  015564                                                                    .WORD   EXPREC
6430 037536                            40$:    CKLOOP                          ;LOOP IF SELECTED
     037536  104406                                                                    TRAP    C$CLP1
6431 037540  012703  001000                    MOV     #512.,R3                ;RECORD SIZE
6432 037544  013737  003114  045052            MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
6433
6434                                    ;*************************************************************************
6435                                    ;
6436                                    ;WRITE DATA,ACK,CVC=1 COMMAND
6437                                    ;
6438                                    ;*************************************************************************
6439
6440 037552  012737  140005  045050            MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
6441 037560  012704  045050                    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6442 037564                            65$:
6443 037564  010337  045056                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
6444 037570  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6445 037574  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6446 037600  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6447 037604  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
6448 037610  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
6449 037612  001406                            BEQ     75$                     ;BR, IF OK
6450 037614  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6454 037620                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     037620  104456                                                                    TRAP    C$ERHRD
     037622  000655                                                                    .WORD   429
     037624  005111                                                                    .WORD   WRTERR
     037626  012136                                                                    .WORD   PKTSSR
6455 037630                            75$:    CKLOOP                          ;LOOP IF SELECTED
     037630  104406                                                                    TRAP    C$CLP1
6456 037632                            120$:
6457
6458                                    ;*************************************************************************
6459                                    ;
6460                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6461                                    ;
6462                                    ;*************************************************************************
6463
6464 037632  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6465 037636  103407                            BCS     130$                    ;BR, IF NO PROBLEM
6466 037640  010001                            MOV     R0,R1                   ;SAVE TSSR
6467 037642  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6471 037646                                    ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     037646  104456                                                                    TRAP    C$ERHRD
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
                                                                                .WORD   430
                                                                                .WORD   T24RWN
                                                                                .WORD   PKTSSR
6472 037656                     130$:   CKLOOP                  ;LOOP IF SELECTED
     037656  104406                                                              TRAP    C$CLP1
6473
6474                            ;*************************************************************************
6475                            ;
6476                            ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
6477                            ;
6478                            ;*************************************************************************
6479
6480 037660  013701  044750             MOV     T24BFR+6,R1             ;PICK UP XSTO
6481 037664  010102                     MOV     R1,R2                   ;SET UP EXPECTED
6482 037666  052702  000002             BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6483 037672  020102                     CMP     R1,R2                   ;DOES EXP = REC'D
6484 037674  001406                     BEQ     140$                    ;BR, IF EQUAL (OK)
6485 037676  005237  002212             INC     FATFLG                  ;BUMP COUNT
6489 037702                             ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     037702  104456                                                              TRAP    C$ERHRD
     037704  000657                                                              .WORD   431
     037706  045723                                                              .WORD   T24BOT
     037710  015564                                                              .WORD   EXPREC
6490 037712                     140$:   CKLOOP                  ;LOOP IF SELECTED
     037712  104406                                                              TRAP    C$CLP1
6491 037714  012703  000400             MOV     #256.,R3                ;RECORD SIZE
6492 037720  013737  003114  045052     MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
6493
6494                            ;*************************************************************************
6495                            ;
6496                            ;READ DATA,ACK,CVC=1 COMMAND
6497                            ;
6498                            ;*************************************************************************
6499
6500 037726  012737  140001  045050         MOV     #140001,T24PK3          ;READ DATA,ACK,CVC=1 COMMAND
6501 037734  012704  045050     165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6502 037740  010337  045056             MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
6503 037744  010465  000000             MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6504 037750  004737  016340             JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6505 037754  016501  000002             MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6506 037760  012702  100204             MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
6507 037764  020102                     CMP     R1,R2                   ;ARE THEY EQUAL
6508 037766  001406                     BEQ     170$                    ;BR, IF OK
6509 037770  005237  002212             INC     FATFLG                  ;BUMP COUNT
6513 037774                             ERRHRD  ERRNO,T24TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     037774  104456                                                              TRAP    C$ERHRD
     037776  000660                                                              .WORD   432
     040000  047254                                                              .WORD   T24TRL
     040002  012136                                                              .WORD   PKTSSR
6514 040004                     170$:   CKLOOP                  ;LOOP IF SELECTED
     040004  104406                                                              TRAP    C$CLP1
6515
6516                            ;*************************************************************************
6517                            ;
6518                            ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
6519                            ;
6520                            ;*************************************************************************
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
6521
6522 040006  013701  044750                  MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
6523 040012  010102                          MOV     R1,R2                   ;SET UP EXPECTED
6524 040014  052702  010000                  BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
6525 040020  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
6526 040022  001406                          BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
6527 040024  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6531 040030                                  ERRHRD  ERRNO,T24LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XSTO
     040030  104456                                                                  TRAP    C$ERHRD
     040032  000661                                                                  .WORD   433
     040034  047022                                                                  .WORD   T24LON
     040036  015564                                                                  .WORD   EXPREC
6532 040040                          180$:
6533 040040                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     040040                                                                       L10056:
     040040  104403                                                                  TRAP    C$ESUB
6534 040042  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
6535 040050  103402                          BLO     999$                            ;BR, IF LESS THAN 25
6536 040052  C04737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
6537 040056                          999$:
6538
6539                                 ;+
6540                                 ;
6541                                 ;TEST 4, SUBTEST 5
6542                                 ;
6543                                 ;VERIFIES THAT A READ FORWARD COMMAND READING A RECORD
6544                                 ;SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES TAPE
6545                                 ;STATUS ALERT TERMINATION WITH THE RECORD LENGTH SHORT
6546                                 ;(RLS) BITS SET. IT IS VERIFIED THAT THE RESIDUAL BYTE
6547                                 ;COUNT (RBPCR) IN THE MESSAGE BUFFER CONTAINS THE
6548                                 ;PROPER NONZERO VALUE (E.G. THE DIFFERENCE BETWEEN
6549                                 ;THE ORIGINAL BYTE COUNT AND THE ACTUAL RECORD
6550                                 ;LENGTH).
6551                                 ;
6552                                 ;
6553                                 ;
6554                                 ;-
6555
6556 040056                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     040056                                                                       T4.5:
     040056  104402                                                                  TRAP    C$BSUB
6557 040060  004737  047544                  JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
6558 040064  004737  047410                  JSR     PC,T24REST              ;SET COMMAND PACKET
6559 040070  004737  047502                  JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
6560
6561                                 ;*************************************************************************
6562                                 ;
6563                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
6564                                 ;
6565                                 ;*************************************************************************
6566
6567 040074  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
6568 040100  103407                          BCS     20$                     ;BR IF INIT WAS OK
6569 040102  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6573 040106  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
6574 040110                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     040110  104455                                                                  TRAP    C$ERDF
```

TEST  4: BASIC READ DATA (FORWARD AND REVERSE)

```
        040112  000662                                                          .WORD   434
        040114  003650                                                          .WORD   SFIERR
        040116  012124                                                          .WORD   SFIMSG
  6575  040120                          20$:
  6576  040120  013737  002172  044740          MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
  6577  040126  012704  044720                  MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
  6578
  6579                                  ;*************************************************************************
  6580                                  ;
  6581                                  ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
  6582                                  ;
  6583                                  ;*************************************************************************
  6584
  6585  040132  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
  6586  040136  103407                          BCS     24$                     ;BR, IF COMMAND ISSUED OK
  6587  040140  005237  002212                  INC     FATFLG                  ;BUMP COUNT
  6591  040144  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
  6592  040146                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        040146  104456                                                          TRAP    C$ERHRD
        040150  000663                                                          .WORD   435
        040152  005054                                                          .WORD   WRTMSG
        040154  012124                                                          .WORD   SFIMSG
  6593  040156                          24$:    CKLOOP                          ;LOOP IF SELECTED
        040156  104406                                                          TRAP    C$CLP1
  6594
  6595                                  ;*************************************************************************
  6596                                  ;
  6597                                  ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
  6598                                  ;
  6599                                  ;*************************************************************************
  6600
  6601  040160  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
  6602  040164  103407                          BCS     30$                     ;BR, IF NO PROBLEM
  6603  040166  010001                          MOV     R0,R1                   ;SAVE TSSR
  6604  040170  005237  002212                  INC     FATFLG                  ;BUMP COUNT
  6608  040174                                  ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
        040174  104456                                                          TRAP    C$ERHRD
        040176  000664                                                          .WORD   436
        040200  046206                                                          .WORD   T24RWN
        040202  012136                                                          .WORD   PKTSSR
  6609  040204                          30$:    CKLOOP                          ;LOOP IF SELECTED
        040204  104406                                                          TRAP    C$CLP1
  6610  040206  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
  6611  040212  013737  003114  045052          MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
  6612
  6613                                  ;*************************************************************************
  6614                                  ;
  6615                                  ;WRITE DATA,ACK,CVC=1 COMMAND
  6616                                  ;
  6617                                  ;*************************************************************************
  6618
  6619  040220  012737  140005  045050          MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
  6620  040226  012704  045050                  MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
  6621  040232                          65$:
  6622  040232  010337  045056                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
  6623  040236  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
  6624  040242  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
6625 040246  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6626 040252  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
6627 040256  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
6628 040260  001406                          BEQ     75$                     ;BR, IF OK
6629 040262  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6633 040266                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     040266  104456                                                                  TRAP    C$ERHRD
     040270  000665                                                                  .WORD   437
     040272  005111                                                                  .WORD   WRTERR
     040274  012136                                                                  .WORD   PKTSSR
6634 040276                          75$:    CKLOOP                          ;LOOP IF SELECTED
     040276  104406                                                                  TRAP    C$CLP1
6635 040300                          120$:
6636
6637                                 ;*************************************************************************
6638                                 ;
6639                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6640                                 ;
6641                                 ;*************************************************************************
6642
6643 040300  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6644 040304  103407                          BCS     130$                    ;BR, IF NO PROBLEM
6645 040306  010001                          MOV     R0,R1                   ;SAVE TSSR
6646 040310  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6650 040314                                  ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     040314  104456                                                                  TRAP    C$ERHRD
     040316  000666                                                                  .WORD   438
     040320  046206                                                                  .WORD   T24RWN
     040322  012136                                                                  .WORD   PKTSSR
6651 040324                          130$:   CKLOOP                          ;LOOP IF SELECTED
     040324  104406                                                                  TRAP    C$CLP1
6652 040326  012703  001000                  MOV     #512.,R3                ;RECORD SIZE
6653 040332  013737  003114  045052          MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
6654
6655                                 ;*************************************************************************
6656                                 ;
6657                                 ;READ DATA,ACK,CVC=1 COMMAND
6658                                 ;
6659                                 ;*************************************************************************
6660
6661 040340  012737  140001  045050          MOV     #140001,T24PK3          ;READ DATA,ACK,CVC=1 COMMAND
6662 040346  012704  045050          165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6663 040352  010337  045056                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
6664 040356  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6665 040362  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6666 040366  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6667 040372  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
6668 040376  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
6669 040400  001406                          BEQ     170$                    ;BR, IF OK
6670 040402  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6674 040406                                  ERRHRD  ERRNO,T24TRL,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     040406  104456                                                                  TRAP    C$ERHRD
     040410  000667                                                                  .WORD   439
     040412  047254                                                                  .WORD   T24TRL
     040414  015564                                                                  .WORD   EXPREC
6675 040416                          170$:   CKLOOP                          ;LOOP IF SELECTED
     040416  104406                                                                  TRAP    C$CLP1
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
6676
6677                                    ;*************************************************************************
6678                                    ;
6679                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6680                                    ;
6681                                    ;*************************************************************************
6682
6683 040420  013701  044750                    MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
6684 040424  010102                            MOV     R1,R2                   ;SET UP EXPECTED
6685 040426  052702  040000                    BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
6686 040432  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
6687 040434  001406                            BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
6688 040436  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6692 040442                                    ERRHRD  ERRNO,T24LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     040442  104456                                                                    TRAP    C$ERHRD
     040444  000670                                                                    .WORD   440
     040446  047104                                                                    .WORD   T24LOP
     040450  015564                                                                    .WORD   EXPREC
6693 040452                                180$:
6694 040452  013701  044746                    MOV     T24BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
6695 040456  012702  000400                    MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
6696 040462  020102                            CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
6697 040464  001406                            BEQ     190$                    ;BR, IF CORRECT
6698 040466  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6702 040472                                    ERRHRD  ERRNO,T24PBP,EXPREC     ;RBPCR NOT CORRECT
     040472  104456                                                                    TRAP    C$ERHRD
     040474  000671                                                                    .WORD   441
     040476  047166                                                                    .WORD   T24PBP
     040500  015564                                                                    .WORD   EXPREC
6703 040502                                190$:   CKLOOP                          ;LOOP IF SELECTED
     040502  104406                                                                    TRAP    C$CLP1
6704 040504                                    ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     040504                                                                     L10057:
     040504  104403                                                                    TRAP    C$ESUB
6705 040506  023727  002212  000017                CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
6706 040514  103402                            BLO     999$                    ;BR, IF LESS THAN 25
6707 040516  004737  017272                    JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
6708 040522                                999$:
6709
6710                                    ;*
6711                                    ;
6712                                    ;TEST 4, SUBTEST 6
6713                                    ;
6714                                    ;VERIFIES THAT READ REVERSE COMMANDS WITH SWB=0
6715                                    ;OPERATES PROPERLY. THE TAPE IS FIRST REWOUND AND THEN
6716                                    ;WRITTEN WITH A SERIES OF TEST RECORDS VARING IN
6717                                    ;LENGTH AND DATA CONTENT. THE TAPE IS THEN READ IN REVERSE
6718                                    ;SEQUENTIALLY AND THE RESULTS
6719                                    ;(STATUS, DATA, ETC.) VERIFIED. THE BYTE COUNT ON
6720                                    ;EACH READ REVERSE COMMAND IS SET TO THE LENGTH OF THE
6721                                    ;EXPECTED RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD
6722                                    ;OCCUR.
6723                                    ;
6724                                    ;
6725                                    ;
6726                                    ;-
6727 040522                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
```

```
     040522                                                                                T4.6:
     040522  104402                                                                                TRAP    C$BSUB
     040524  004737  047544                  JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
     040530  004737  047410                  JSR     PC,T24REST              ;SET COMMAND PACKET
     040534  004737  047502                  JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET

                                     ;*******************************************************************
                                     ;
                                     ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                     ;
                                     ;*******************************************************************

     040540  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
     040544  103407                          BCS     20$                     ;BR IF INIT WAS OK
     040546  005237  002212                  INC     FATFLG                  ;BUMP COUNT
     040552  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
     040554                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     040554  104455                                                                                TRAP    C$ERDF
     040556  000672                                                                                .WORD   442
     040560  003650                                                                                .WORD   SFIERR
     040562  012124                                                                                .WORD   SFIMSG
     040564                          20$:
     040564  013737  002172  044740          MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
     040572  012704  044720                  MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                     ;*******************************************************************
                                     ;
                                     ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                     ;
                                     ;*******************************************************************

     040576  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
     040602  103407                          BCS     24$                     ;BR, IF COMMAND ISSUED OK
     040604  005237  002212                  INC     FATFLG                  ;BUMP COUNT
     040610  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
     040612                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     040612  104456                                                                                TRAP    C$ERHRD
     040614  000673                                                                                .WORD   443
     040616  005054                                                                                .WORD   WRTMSG
     040620  012124                                                                                .WORD   SFIMSG
     040622                          24$:    CKLOOP                          ;LOOP IF SELECTED
     040622  104406                                                                                TRAP    C$CLP1

                                     ;*******************************************************************
                                     ;
                                     ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                     ;
                                     ;*******************************************************************

     040624  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
     040630  103407                          BCS     30$                     ;BR, IF NO PROBLEM
     040632  010001                          MOV     R0,R1                   ;SAVE TSSR
     040634  005237  002212                  INC     FATFLG                  ;BUMP COUNT
     040640                                  ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     040640  104456                                                                                TRAP    C$ERHRD
     040642  000674                                                                                .WORD   444
     040644  046206                                                                                .WORD   T24RWN
```

```
     040646  012136                                                                  .WORD   PKTSSR
     040650                          30$:    CKLOOP                          ;LOOP IF SELECTED
     040650  104406                                                                  TRAP    C$CLP1
     040652  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
     040656  013737  003114  045052          MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS

                                     ;*******************************************************************
                                     ;
                                     ;WRITE DATA,ACK,CVC=1 COMMAND
                                     ;
                                     ;*******************************************************************

     040664  012737  140005  045050          MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
     040672  012704  045050                  MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
     040676                          65$:
     040676  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
     040700  004737  017512                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
     040704  010337  045056                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
     040710  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
     040714  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
     040720  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
     040724  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
     040730  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
     040732  001406                          BEQ     75$                     ;BR, IF OK
     040734  005237  002212                  INC     FATFLG                  ;BUMP COUNT
     040740                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     040740  104456                                                                  TRAP    C$ERHRD
     040742  000675                                                                  .WORD   445
     040744  005111                                                                  .WORD   WRTERR
     040746  012136                                                                  .WORD   PKTSSR
     040750                          75$:    CKLOOP                          ;LOOP IF SELECTED
     040750  104406                                                                  TRAP    C$CLP1
     040752  005723                          TST     (R3)+                   ;BUMP RECORD SIZE
     040754  022703  000414                  CMP     #268.,R3                ;END OF RECORD YET
     040760  001346                          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
     040762                          80$:    CKLOOP                          ;LOOP IF SELECTED
     040762  104406                                                                  TRAP    C$CLP1
     040764  005743                          TST     -(R3)                   ;SET BACK TO 512.
     040766  013737  003114  045052          MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS

                                     ;*******************************************************************
                                     ;
                                     ;READ REVERSE DATA,ACK COMMAND
                                     ;
                                     ;*******************************************************************

     040774  012737  100401  045050          MOV     #100401,T24PK3          ;READ REVERSE DATA,ACK COMMAND
     041002  012704  045050          165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
     041006  010337  045056                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
     041012  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
     041016  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
     041022  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
     041026  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
     041032  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
     041034  001406                          BEQ     170$                    ;BR, IF OK
     041036  005237  002212                  INC     FATFLG                  ;BUMP COUNT
     041042                                  ERRHRD  ERRNO,T24WDC,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
        041042  104456                                                          TRAP    C$ERHRD
        041044  000676                                                          .WORD   446
        041046  046536                                                          .WORD   T24WDC
        041050  012136                                                          .WORD   PKTSSR
  6835  041052                  170$:   CKLOOP                          ;LOOP IF SELECTED
        041052  104406                                                          TRAP    C$CLP1
  6836  041054  013702  003114          MOV     FREE,R2                 ;GET BUFFER ADDRESS
  6837  041060  010304                  MOV     R3,R4                   ;CURRENT RECORD SIZE
  6838  041062  162704  000400          SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
  6839  041066  060204          173$:   ADD     R2,R4                   ;SET POINTER TO FRAME (WORD)
  6840  041070  021403                  CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
  6841  041072  001410                  BEQ     180$                    ;BR, IF ALL IS WELL
  6842  041074  011401                  MOV     (R4),R1                 ;RECD DATA
  6843  041076  010302                  MOV     R3,R2                   ;EXPECTED DATA
  6844  041100  005237  002212          INC     FATFLG                  ;BUMP COUNT
  6848  041104                          ERRHRD  ERRNO,T24DTA,EXPREC     ;DATA READ NOT = WRITTEN
        041104  104456                                                          TRAP    C$ERHRD
        041106  000677                                                          .WORD   447
        041110  045770                                                          .WORD   T24DTA
        041112  015564                                                          .WORD   EXPREC
  6849  041114                  180$:   CKLOOP                          ;LOOP IF SELECTED
        041114  104406                                                          TRAP    C$CLP1
  6850  041116  005724                  TST     (R4)+                   ;BUMP TO NEXT LOCATION
  6851  041120  160204                  SUB     R2,R4                   ;GET RID OF BASE ADDRESS
  6852  041122  020403                  CMP     R4,R3                   ;END OF RECORD YET
  6853  041124  001360                  BNE     173$                    ;BR, IF NOT AT END OF RECORD
  6854  041126  005743                  TST     -(R3)                   ;BUMP RECORD SIZE
  6855  041130  022703  000400          CMP     #256.,R3                ;END OF RECORD YET
  6856  041134  001322                  BNE     165$                    ;BR, IF MORE RECORDS TO WRITE
  6857  041136                  190$:   CKLOOP                          ;LOOP IF SELECTED
        041136  104406                                                          TRAP    C$CLP1
  6858  041140                          ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
        041140                                                                  L10060:
        041140  104403                                                          TRAP    C$ESUB
  6859  041142  023727  002212  000017      CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
  6860  041150  103402                      BLO     999$                    ;BR, IF LESS THAN 25
  6861  041152  004737  017272              JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
  6862  041156                  999$:
  6863
  6864                          ;+
  6865                          ;
  6866                          ;TEST 4, SUBTEST 7
  6867                          ;
  6868                          ;VERIFIES THAT READ DATA COMMANDS WITH CVC=1 AND THE
  6869                          ;SWAP BYTES (SWB) BIT SET OPERATES PROPERLY. THE TEST
  6870                          ;SEQUENCE IS IDENTICAL TO THAT USED IN SUBTEST 2.
  6871                          ;THE RESULTS, EXCEPT FOR RAM CONTENTS, SHOULD BE THE SAME.
  6872                          ;
  6873                          ;
  6874                          ;
  6875                          ;-
  6876  041156                          BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
        041156                                                                  T4.7:
        041156  104402                                                          TRAP    C$BSUB
  6877  041160  004737  047544          JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
  6878  041164  004737  047410          JSR     PC,T24REST              ;SET COMMAND PACKET
  6879  041170  004737  047502          JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
6880
6881                            ;*************************************************************************
6882                            ;
6883                            ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
6884                            ;
6885                            ;*************************************************************************
6886
6887 041174  004737  016064            JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
6888 041200  103407                    BCS     20$                     ;BR IF INIT WAS OK
6889 041202  005237  002212            INC     FATFLG                  ;BUMP COUNT
6893 041206  010001                    MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
6894 041210                            ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      041210  104455                                                            TRAP    C$ERDF
      041212  000700                                                            .WORD   448
      041214  003650                                                            .WORD   SFIERR
      041216  012124                                                            .WORD   SFIMSG
6895 041220                         20$:
6896 041220  013737  002172  044740      MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
6897 041226  C12704  044720            MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
6898
6899                            ;*************************************************************************
6900                            ;
6901                            ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
6902                            ;
6903                            ;*************************************************************************
6904
6905 041232  004737  010752            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
6906 041236  103407                    BCS     24$                     ;BR, IF COMMAND ISSUED OK
6907 041240  005237  002212            INC     FATFLG                  ;BUMP COUNT
6911 041244  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
6912 041246                            ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      041246  104456                                                            TRAP    C$ERHRD
      041250  000701                                                            .WORD   449
      041252  005054                                                            .WORD   WRTMSG
      041254  012124                                                            .WORD   SFIMSG
6913 041256                         24$:    CKLOOP                          ;LOOP IF SELECTED
      041256  104406                                                            TRAP    C$CLP1
6914
6915                            ;*************************************************************************
6916                            ;
6917                            ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6918                            ;
6919                            ;*************************************************************************
6920
6921 041260  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6922 041264  103407                    BCS     30$                     ;BR, IF NO PROBLEM
6923 041266  010001                    MOV     R0,R1                   ;SAVE TSSR
6924 041270  005237  002212            INC     FATFLG                  ;BUMP COUNT
6928 041274                            ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
      041274  104456                                                            TRAP    C$ERHRD
      041276  000702                                                            .WORD   450
      041300  046206                                                            .WORD   T24RWN
      041302  012136                                                            .WORD   PKTSSR
6929 041304                         30$:    CKLOOP                          ;LOOP IF SELECTED
      041304  104406                                                            TRAP    C$CLP1
6930 041306  012703  000400            MOV     #256.,R3                ;RECORD SIZE
6931 041312  013737  003114  045052      MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
6932
6933                                    ;*************************************************************************
6934                                    ;
6935                                    ;WRITE DATA,ACK,CVC=1,SWB COMMAND
6936                                    ;
6937                                    ;*************************************************************************
6938
6939 041320  012737  150005  045050            MOV     #150005,T24PK3          ;WRITE DATA,ACK,CVC=1,SWB COMMAND
6940 041326  012704  045050                    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6941 041332                              65$:
6942 041332  010300                            MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
6943 041334  004737  017512                    JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
6944 041340  010337  045056                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
6945 041344  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6946 041350  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6947 041354  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6948 041360  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
6949 041364  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
6950 041366  C01406                            BEQ     75$                     ;BR, IF OK
6951 041370  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6955 041374                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     041374  104456                                                                    TRAP    C$ERHRD
     041376  000703                                                                    .WORD   451
     041400  005111                                                                    .WORD   WRTERR
     041402  012136                                                                    .WORD   PKTSSR
6956 041404                              75$:   CKLOOP                          ;LOOP IF SELECTED
     041404  104406                                                                    TRAP    C$CLP1
6957 041406  005723                            TST     (R3)+                   ;BUMP RECORD SIZE
6958 041410  022703  000414                    CMP     #268.,R3                ;END OF RECORD YET
6959 041414  001346                            BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
6960 041416                              80$:   CKLOOP                          ;LOOP IF SELECTED
     041416  104406                                                                    TRAP    C$CLP1
6961 041420  005743                            TST     -(R3)                   ;SET RECORD SIZE BACK TO 512.
6962 041422  013737  003114  045052            MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
6963
6964                                    ;*************************************************************************
6965                                    ;
6966                                    ;READ REVERSE DATA,ACK,SWB COMMAND
6967                                    ;
6968                                    ;*************************************************************************
6969
6970 041430  012737  110401  045050            MOV     #110401,T24PK3          ;READ REVERSE DATA,ACK,SWB COMMAND
6971 041436  012704  045050              165$: MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6972 041442  010337  045056                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
6973 041446  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6974 041452  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6975 041456  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6976 041462  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
6977 041466  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
6978 041470  001406                            BEQ     170$                    ;BR, IF OK
6979 041472  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6983 041476                                    ERRHRD  ERRNO,T24WDC,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     041476  104456                                                                    TRAP    C$ERHRD
     041500  000704                                                                    .WORD   452
     041502  046536                                                                    .WORD   T24WDC
     041504  015564                                                                    .WORD   EXPREC
6984 041506                              170$:  CKLOOP                          ;LOOP IF SELECTED
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
        041506  104406                                                          TRAP    C$CLP1
 6985   041510  013702  003114                  MOV     FREE,R2                 ;GET BUFFER ADDRESS
 6986   041514  010304                          MOV     R3,R4                   ;CURRENT RECORD SIZE
 6987   041516  162704  000400                  SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
 6988   041522  060204              173$:       ADD     R2,R4                   ;SET POINTER TO FRAME (WORD)
 6989   041524  021403                          CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
 6990   041526  001410                          BEQ     180$                    ;BR, IF ALL IS WELL
 6991   041530  011401                          MOV     (R4),R1                 ;RECD DATA
 6992   041532  010302                          MOV     R3,R2                   ;EXPECTED DATA
 6993   041534  005237  002212                 INC     FATFLG                  ;BUMP COUNT
 6997   041540                                  ERRHRD  ERRNO,T24DTA,EXPREC     ;DATA READ NOT = WRITTEN
        041540  104456                                                          TRAP    C$ERHRD
        041542  000705                                                          .WORD   453
        041544  045770                                                          .WORD   T24DTA
        041546  015564                                                          .WORD   EXPREC
 6998   041550              180$:       CKLOOP                                  ;LOOP IF SELECTED
        041550  104406                                                          TRAP    C$CLP1
 6999   041552  005724                          TST     (R4)+                   ;BUMP TO NEXT LOCATION
 7000   041554  160204                          SUB     R2,R4                   ;GET RID OF BASE ADDRESS
 7001   041556  020403                          CMP     R4,R3                   ;END OF RECORD YET
 7002   041560  001360                          BNE     173$                    ;BR, IF NOT AT END OF RECORD
 7003   041562  005743                          TST     -(R3)                   ;BUMP RECORD SIZE
 7004   041564  022703  000400                 CMP     #256.,R3                ;END OF RECORD YET
 7005   041570  001322                          BNE     165$                    ;BR, IF MORE RECORDS TO WRITE
 7006   041572              190$:       CKLOOP                                  ;LOOP IF SELECTED
        041572  104406                                                          TRAP    C$CLP1
 7007   041574                          ENDSUB                                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        041574                                                                  L10061:
        041574  104403                                                          TRAP    C$ESUB
 7008   041576  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
 7009   041604  103402                          BLO     999$                    ;BR, IF LESS THAN 25
 7010   041606  004737  017272                 JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
 7011   041612              999$:
 7012                       ;+
 7013                       ;
 7014                       ;TEST 4, SUBTEST 8
 7015                       ;
 7016                       ;VERIFIES THAT A READ REVERSE COMMAND READING A RECORD
 7017                       ;LONGER THAN THE SPECIFIED BYTE COUNT CAUSES TAPE
 7018                       ;STATUS ALERT TERMINATION WITH THE RECORD LENGTH LONG
 7019                       ;(RLL) BIT SET.
 7020                       ;
 7021                       ;
 7022                       ;-
 7023
 7024   041612                          BGNSUB                                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
        041612                                                                  T4.8:
        041612  104402                                                          TRAP    C$BSUB
 7025   041614  004737  047544                 JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
 7026   041620  004737  047410                 JSR     PC,T24REST              ;SET COMMAND PACKET
 7027   041624  004737  047502                 JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
 7028
 7029                       ;*************************************************************************
 7030                       ;
 7031                       ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
 7032                       ;
 7033                       ;*************************************************************************
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
7034
7035 041630  004737  016064              JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
7036 041634  103407                      BCS     20$                     ;BR IF INIT WAS OK
7037 041636  005237  002212              INC     FATFLG                  ;BUMP COUNT
7041 041642  010001                      MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
7042 041644                              ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     041644  104455                                                      TRAP    C$ERDF
     041646  000706                                                      .WORD   454
     041650  003650                                                      .WORD   SFIERR
     041652  012124                                                      .WORD   SFIMSG
7043 041654                          20$:
7044 041654  013737  002172  044740        MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
7045 041662  012704  044720                MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
7046
7047                                 ;*************************************************************************
7048                                 ;
7049                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
7050                                 ;
7051                                 ;*************************************************************************
7052
7053 041666  004737  010752              JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
7054 041672  103407                      BCS     24$                     ;BR, IF COMMAND ISSUED OK
7055 041674  005237  002212              INC     FATFLG                  ;BUMP COUNT
7059 041700  010001                      MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
7060 041702                              ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     041702  104456                                                      TRAP    C$ERHRD
     041704  000707                                                      .WORD   455
     041706  005054                                                      .WORD   WRTMSG
     041710  012124                                                      .WORD   SFIMSG
7061 041712                          24$:    CKLOOP                          ;LOOP IF SELECTED
     041712  104406                                                      TRAP    C$CLP1
7062
7063                                 ;*************************************************************************
7064                                 ;
7065                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7066                                 ;
7067                                 ;*************************************************************************
7068
7069 041714  004737  011104              JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7070 041720  004737  016426              JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
7071 041724  103407                      BCS     30$                     ;BR, IF NO PROBLEM
7072 041726  010001                      MOV     R0,R1                   ;SAVE TSSR
7073 041730  005237  002212              INC     FATFLG                  ;BUMP COUNT
7077 041734                              ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     041734  104456                                                      TRAP    C$ERHRD
     041736  000710                                                      .WORD   456
     041740  046206                                                      .WORD   T24RWN
     041742  012136                                                      .WORD   PKTSSR
7078 041744                          30$:    CKLOOP                          ;LOOP IF SELECTED
     041744  104406                                                      TRAP    C$CLP1
7079 041746  012703  001000              MOV     #512.,R3                ;RECORD SIZE
7080 041752  013737  003114  045052        MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
7081
7082                                 ;*************************************************************************
7083                                 ;
7084                                 ;WRITE DATA,ACK,CVC=1 COMMAND
7085                                 ;
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
7086                                    ;*************************************************************************
7087
7088 041760  012737  140005  045050            MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
7089 041766  012704  045050                    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7090 041772                             65$:
7091 041772  010337  045056                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
7092 041776  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7093 042002  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7094 042006  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7095 042012  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
7096 042016  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
7097 042020  001406                            BEQ     75$                     ;BR, IF OK
7098 042022  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7102 042026                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     042026  104456                                                                 TRAP    C$ERHRD
     042030  000711                                                                 .WORD   457
     042032  005111                                                                 .WORD   WRTERR
     042034  012136                                                                 .WORD   PKTSSR
7103 042036                             75$:    CKLOOP                          ;LOOP IF SELECTED
     042036  104406                                                                 TRAP    C$CLP1
7104 042040  012703  000400                    MOV     #256.,R3                ;SIZE OF RECORD
7105 042044  013737  003114  045052            MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
7106
7107                                    ;*************************************************************************
7108                                    ;
7109                                    ;READ DATA,ACK COMMAND
7110                                    ;
7111                                    ;*************************************************************************
7112
7113 042052  012737  100401  045050            MOV     #100401,T24PK3          ;READ DATA,ACK COMMAND
7114 042060  012704  045050             165$:  MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7115 042064  010337  045056                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
7116 042070  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7117 042074  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7118 042100  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7119 042104  012702  100204                    MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
7120 042110  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
7121 042112  001406                            BEQ     170$                    ;BR, IF OK
7122 042114  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7126 042120                                    ERRHRD  ERRNO,T24TRL,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     042120  104456                                                                 TRAP    C$ERHRD
     042122  000712                                                                 .WORD   458
     042124  047254                                                                 .WORD   T24TRL
     042126  015564                                                                 .WORD   EXPREC
7127 042130                             170$:   CKLOOP                          ;LOOP IF SELECTED
     042130  104406                                                                 TRAP    C$CLP1
7128
7129                                    ;*************************************************************************
7130                                    ;
7131                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7132                                    ;
7133                                    ;*************************************************************************
7134
7135 042132  013701  044750                    MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER (XST0)
7136 042136  010102                            MOV     R1,R2                   ;SET UP EXPECTED
7137 042140  052702  010000                    BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
7138 042144  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
7139 042146  001406                        BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
7140 042150  005237  002212                INC     FATFLG                  ;BUMP COUNT
7144 042154                                ERRHRD  ERRNO,T24LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XSTO
     042154  104456                                                                TRAP    C$ERHRD
     042156  000713                                                                .WORD   459
     042160  047022                                                                .WORD   T24LON
     042162  015564                                                                .WORD   EXPREC
7145 042164                        180$:   CKLOOP
     042164  104406                                                                TRAP    C$CLP1
7146 042166                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     042166                                                                     L10062:
     042166  104403                                                                TRAP    C$ESUB
7147 042170  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
7148 042176  103402                        BLO     999$                            ;BR, IF LESS THAN 25
7149 042200  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
7150 042204                        999$:
7151
7152                               ;+
7153                               ;
7154                               ;TEST 4, SUBTEST 9
7155                               ;
7156                               ;VERIFIES THAT A READ REVERSE COMMAND SPECIFYING A DATA
7157                               ;BUFFER STARTING IN NONEXISTANT MEMORY TERMINATES WITH
7158                               ;THE PROPER ERROR STATUS WITHOUT MOVING TAPE
7159                               ;-
7160
7161 042204                                BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     042204                                                                     T4.9:
     042204  104402                                                                TRAP    C$BSUB
7162 042206  005737  003126                TST     NXMFLG                  ;DO WE HAVE IT?
7163 042212  001002                        BNE     10$                     ;BR, IF  ENOUGH
7164 042214  000137  042670                JMP     180$                    ;SKIP THIS TEST IF NOT
7165 042220  004737  047544        10$:    JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
7166 042224  004737  047410                JSR     PC,T24REST              ;SET COMMAND PACKET
7167 042230  004737  047502                JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
7168
7169                               ;*************************************************************************
7170                               ;
7171                               ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
7172                               ;
7173                               ;*************************************************************************
7174
7175 042234  004737  016064                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
7176 042240  103407                        BCS     20$                     ;BR IF INIT WAS OK
7177 042242  005237  002212                INC     FATFLG                  ;BUMP COUNT
7181 042246  010001                        MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
7182 042250                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     042250  104455                                                                TRAP    C$ERDF
     042252  000714                                                                .WORD   460
     042254  003650                                                                .WORD   SFIERR
     042256  012124                                                                .WORD   SFIMSG
7183 042260                        20$:
7184 042260  013737  002172  044740        MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
7185 042266  012704  044720                MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
7186
7187                               ;*************************************************************************
7188                               ;
```

```
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*******************************************************************
042272  004737  010752                          JSR     PC,WRTCHR                   ;ISSUE WRITE CHARACTERISTICS
042276  103407                                  BCS     24$                         ;BR, IF COMMAND ISSUED OK
042300  005237  002212                          INC     FATFLG                      ;BUMP COUNT
042304  010001                                  MOV     R0,R1                       ;SAVE CONTENTS OF TSSR
042306                                          ERRHRD  ERRNO,WRTMSG,SFIMSG         ;WRITE CHARACTERISTISC FAILED
042306  104456                                                                                      TRAP    C$ERHRD
042310  000715                                                                                      .WORD   461
042312  005054                                                                                      .WORD   WRTMSG
042314  012124                                                                                      .WORD   SFIMSG
042316                                  24$:    CKLOOP                              ;LOOP IF SELECTED
042316  104406                                                                                      TRAP    C$CLP1

                                        ;*******************************************************************
                                        ;
                                        ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                        ;
                                        ;*******************************************************************


042320  005737  002216                          TST     EXTFEA                      ;CHECK FOR EXTENDED FEATURES SW SWITCH
042324  001024                                  BNE     27$                         ;BR IF SWITCH IS ON
042326  112737  000200  045061                  MOVB    #200,T24BS1                 ;WRITE MISCELLANEOUS CONT/READ STATUS
042334  112737  000010  045060                  MOVB    #10,T24BS0                  ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
042342  012704  045030                          MOV     #T24PK2,R4                  ;WRITE SUBSYS MEM PACKET
042346  010465  000000                          MOV     R4,TSDB(R5)                 ;ISSUE COMMAND
042352  004737  016426                          JSR     PC,CHKTSSR                  ;WAIT FOR SSR
042356  103407                                  BCS     28$                         ;BR, IF NO ERROR
042360  010001                                  MOV     R0,R1                       ;ERROR, SAVE TSSR
042362  005237  002212                          INC     FATFLG                      ;BUMP COUNT
042366                                          ERRHRD  ERRNO,T22SSR,PKTSSR         ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
042366  104456                                                                                      TRAP    C$ERHRD
042370  000716                                                                                      .WORD   462
042372  027200                                                                                      .WORD   T22SSR
042374  012136                                                                                      .WORD   PKTSSR
042376                                  27$:
042376                                  28$:    CKLOOP                              ;LOOP IF SELECTED
042376  104406                                                                                      TRAP    C$CLP1


042400  004737  011104                          JSR     PC,REWIND                   ;CALL TAPE REWIND COMMAND
042404  004737  016426                          JSR     PC,CHKTSSR                  ;SEE HOW TSSR IS
042410  103407                                  BCS     30$                         ;BR, IF NO PROBLEM
042412  010001                                  MOV     R0,R1                       ;SAVE TSSR
042414  005237  002212                          INC     FATFLG                      ;BUMP COUNT
042420                                          ERRHRD  ERRNO,T24RWN,PKTSSR         ;REWIND NOT ACCEPTED
042420  104456                                                                                      TRAP    C$ERHRD
042422  000717                                                                                      .WORD   463
042424  046206                                                                                      .WORD   T24RWN
042426  012136                                                                                      .WORD   PKTSSR
042430                                  30$:    CKLOOP                              ;LOOP IF SELECTED
042430  104406                                                                                      TRAP    C$CLP1
042432  012703  000005                          MOV     #5.,R3                      ;NUMBER OF RECORDS
```

TEST  4: BASIC READ DATA (FORWARD AND REVERSE)

```
7240 042436  013737  003114  045052          MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
7241                                 ;*************************************************************************
7242                                 ;
7243                                 ;WRITE DATA,ACK,CVC=1 COMMAND
7244                                 ;
7245                                 ;*************************************************************************
7246
7247 042444  012737  140005  045050          MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
7248 042452  012704  045050                  MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7249 042456                          65$:
7250 042456  012737  000256  045056          MOV     #256,T24SZ              ;SET UP RECORD SIZE IN PACKET
7251 042464  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7252 042470  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7253 042474  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7254 042500  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
7255 042504  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
7256 042506  001406                          BEQ     75$                     ;BR, IF OK
7257 042510  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7261 042514                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     042514  104456                                                                  TRAP    C$ERHRD
     042516  000720                                                                  .WORD   464
     042520  005111                                                                  .WORD   WRTERR
     042522  012136                                                                  .WORD   PKTSSR
7262 042524                          75$:    CKLOOP                          ;LOOP IF SELECTED
     042524  104406                                                                  TRAP    C$CLP1
7263 042526  005303                          DEC     R3                      ;BUMP DOWN RECORD COUNTER
7264 042530  001352                          BNE     65$                     ;BR, IF NOT AT 5 RECORDS YET
7265 042532  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
7266 042536  012701  160000                  MOV     #160000,R1              ;NXM LOW ADDRESS START
7267 042542  012702  177776                  MOV     #177776,R2              ;LIMIT CHECK FOR NXM (HIGHEST)
7268 042546  004737  016466                  JSR     PC,XNXM                 ;LOOK FOR NXM ADDRESS
7269 042552  103046                          BCC     180$                    ;BR, IF NON FOUND
7270 042554  010137  003130                  MOV     R1,NXMLO                ;SET ADDRESS UP FOR TEST
7271 042560  013737  003130  045052          MOV     NXMLO,T24RB             ;STARTING READ BUFFER ADDRESS
7272 042566  005037  045054                  CLR     T24RB+2                 ;SET TO 16 BIT ADDRESSING
7273
7274                                 ;*************************************************************************
7275                                 ;
7276                                 ;READ DATA,ACK COMMAND
7277                                 ;
7278                                 ;*************************************************************************
7279
7280 042572  012737  100001  045050          MOV     #100001,T24PK3          ;READ DATA,ACK COMMAND
7281 042600  012704  045050          165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7282 042604  012737  000400  045056          MOV     #256.,T24SZ             ;SET UP RECORD SIZE IN PACKET
7283 042612  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7284 042616  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7285 042622  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7286 042626  012702  104210                  MOV     #SSR!NXM!SC!BIT3,R2     ;SET UP EXPECTED
7287 042632  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
7288 042634  001414                          BEQ     170$                    ;BR, IF OK
7289 042636  005237  045054                  INC     T24RB+2                 ;SET TO NEXT HIGHER ADDRESSING MODE
7290 042642  023727  045054  000004          CMP     T24RB+2,#4              ;DID WE OVERFLOW INTO 19 BITS
7291 042650  001353                          BNE     165$                    ;BR, IF STILL IN 16-18 BITS RANGE
7292 042652  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7296 042656                                  ERRHRD  ERRNO,T24NXM,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     042656  104456                                                                  TRAP    C$ERHRD
```

TEST  4: BASIC READ DATA (FORWARD AND REVERSE)

```
                042660  000721                                                          .WORD   465
                042662  045311                                                          .WORD   T24NXM
                042664  012136                                                          .WORD   PKTSSR
     7297       042666                  170$:   CKLOOP                  ;LOOP IF SELECTED
                042666  104406                                                          TRAP    C$CLP1
     7298       042670                  180$:
     7299       042670                          ENDSUB                  ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
                042670                                                                  L10063:
                042670  104403                                                          TRAP    C$ESUB
     7300       042672  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
     7301       042700  103402                          BLO     999$                    ;BR, IF LESS THAN 25
     7302       042702  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
     7303       042706                  999$:
     7304
     7305                               ;+
     7306                               ;
     7307                               ;TEST 4, SUBTEST 10
     7308                               ;
     7309                               ;VERIFIES THAT ILLEGAL MODE-FIELD CODES IN THE READ
     7310                               ;COMMAND CAUSE A FUNCTION REJECT TERMINATION WITH THE
     7311                               ;ILLEGAL COMMAND (ILC) ERROR BIT SET.
     7312                               ;
     7313                               ;
     7314                               ;
     7315                               ;-
     7316
     7317       042706                          BGNSUB                  ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
                042706                                                                  T4.10:
                042706  104402                                                          TRAP    C$BSUB
     7318       042710  004737  047544          JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
     7319       042714  004737  047410          JSR     PC,T24REST              ;SET COMMAND PACKET
     7320       042720  004737  047502          JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
     7321
     7322                               ;*************************************************************************
     7323                               ;
     7324                               ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
     7325                               ;
     7326                               ;*************************************************************************
     7327
     7328       042724  004737  016064          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
     7329       042730  103407                  BCS     20$                     ;BR IF INIT WAS OK
     7330       042732  005237  002212          INC     FATFLG                  ;BUMP COUNT
     7334       042736  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
     7335       042740                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
                042740  104455                                                          TRAP    C$ERDF
                042742  000722                                                          .WORD   466
                042744  003650                                                          .WORD   SFIERR
                042746  012124                                                          .WORD   SFIMSG
     7336       042750                  20$:
     7337       042750  013737  002172  044740          MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
     7338       042756  012704  044720          MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
     7339
     7340                               ;*************************************************************************
     7341                               ;
     7342                               ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
     7343                               ;
     7344                               ;*************************************************************************
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
7345
7346 042762  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
7347 042766  103407                  BCS     24$                     ;BR, IF COMMAND ISSUED OK
7348 042770  005237  002212          INC     FATFLG                  ;BUMP COUNT
7352 042774  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
7353 042776                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     042776  104456                                                          TRAP    C$ERHRD
     043000  000723                                                          .WORD   467
     043002  005054                                                          .WORD   WRTMSG
     043004  012124                                                          .WORD   SFIMSG
7354 043006                  24$:    CKLOOP                          ;LOOP IF SELECTED
     043006  104406                                                          TRAP    C$CLP1
7355 043010  013737  003114  045052          MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
7356
7357                         ;*************************************************************************
7358                         ;
7359                         ;ILLEGAL MODE DATA,ACK COMMAND
7360                         ;
7361                         ;*************************************************************************
7362
7363 043016  012737  104001  045050          MOV     #104001,T24PK3          ;ILLEGAL MODE DATA,ACK COMMAND
7364 043024  012704  045050                  MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7365 043030  012737  000400  045056          MOV     #256.,T24SZ             ;SET UP RECORD SIZE IN PACKET
7366 043036  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7367 043042  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR!BIT1!BIT2 TO SET
7368 043046  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7369 043052  012702  100206                  MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
7370 043056  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
7371 043060  001406                          BEQ     75$                     ;BR, IF OK
7372 043062  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7376 043066                                  ERRHRD  ERRNO,T24WDF,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     043066  104456                                                                  TRAP    C$ERHRD
     043070  000724                                                                  .WORD   468
     043072  045375                                                                  .WORD   T24WDF
     043074  012136                                                                  .WORD   PKTSSR
7377 043076                  75$:    CKLOOP                                  ;LOOP IF SELECTED
     043076  104406                                                                  TRAP    C$CLP1
7378
7379                         ;*************************************************************************
7380                         ;
7381                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7382                         ;
7383                         ;*************************************************************************
7384
7385 043100  013701  044750          MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
7386 043104  010102                  MOV     R1,R2                   ;SET UP EXPECTED
7387 043106  052702  001000          BIS     #BIT9,R2                ;SET THE ILC BIT IN EXPECTED
7388 043112  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
7389 043114  001406                  BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
7390 043116  005237  002212          INC     FATFLG                  ;BUMP COUNT
7394 043122                          ERRHRD  ERRNO,T24LOG,EXPREC     ;THE ILC BIT WAS NOT SET IN XST0
     043122  104456                                                          TRAP    C$ERHRD
     043124  000725                                                          .WORD   469
     043126  045536                                                          .WORD   T24LOG
     043130  015564                                                          .WORD   EXPREC
7395 043132                  180$:   CKLOOP
     043132  104406                                                          TRAP    C$CLP1
```

```
043134                                  ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
043134                                                                                  L10064:
043134  104403                                                                                  TRAP    C$ESUB
043136  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
043144  103402                          BLO     999$                            ;BR, IF LESS THAN 25
043146  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
043152                          999$:

                                ;+
                                ;
                                ;TEST 4, SUBTEST 11
                                ;
                                ;VERIFIES THAT ILLEGAL BUFFER ADDRESSES CAUSE A
                                ;FUNCTION REJECT TERMINATION WITH ILLEGAL ADDRESS
                                ;(ILA) ERROR BIT SET.
                                ;
                                ;
                                ;
                                ;-

043152                                  BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
043152                                                                                  T4.11:
043152  104402                                                                                  TRAP    C$BSUB
043154  004737  047544                  JSR     PC,T24RT3                ;SET COMMAND PACKET UP CLEAR
043160  004737  047410                  JSR     PC,T24REST               ;SET COMMAND PACKET
043164  004737  047502                  JSR     PC,T24RT2                ;SET UP OTHER COMMAND PACKET

                                ;*****************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                ;
                                ;*****************************************************************

043170  004737  016064                  JSR     PC,SOFINIT               ;DO INITIALIZE ON CONTROLLER
043174  103407                          BCS     20$                      ;BR IF INIT WAS OK
043176  005237  002212                  INC     FATFLG                   ;BUMP COUNT
043202  010001                          MOV     R0,R1                    ;CONTENTS OF TSSR REGISTER
043204                                  ERRDF   ERRNO,SFIERR,SFIMSG      ;FATAL ERROR TSSR WAS NOT OK
043204  104455                                                                                  TRAP    C$ERDF
043206  000726                                                                                  .WORD   470
043210  003650                                                                                  .WORD   SFIERR
043212  012124                                                                                  .WORD   SFIMSG
043214                          20$:
043214  013737  002172  044740          MOV     UNITN,T24DSW             ;SET UP DRIVE NUMBER
043222  012704  044720                  MOV     #T24PACKET,R4            ;SUBROUTINE NEEDS PACKET ADDRESS

                                ;*****************************************************************
                                ;
                                ;WRITE CHARACTERISTICS CUMMAND (CALL TO WRTCHR)
                                ;
                                ;*****************************************************************

043226  004737  010752                  JSR     PC,WRTCHR                ;ISSUE WRITE CHARACTERISTICS
043232  103407                          BCS     24$                      ;BR, IF COMMAND ISSUED OK
043234  005237  002212                  INC     FATFLG                   ;BUMP COUNT
043240  010001                          MOV     R0,R1                    ;SAVE CONTENTS OF TSSR
043242                                  ERRHRD  ERRNO,WRTMSG,SFIMSG      ;WRITE CHARACTERISTISC FAILED
```

```
TEST  4: BASIC READ DATA (FORWARD AND REVERSE)

        043242  104456                                                          TRAP    C$ERHRD
        043244  000727                                                          .WORD   471
        043246  005054                                                          .WORD   WRTMSG
        043250  012124                                                          .WORD   SFIMSG
 7451   043252                          24$:    CKLOOP                          ;LOOP IF SELECTED
        043252  104406                                                          TRAP    C$CLP1
 7452   043254  013737  003114  045052          MOV     FREE,T24RB              ;ILLEGAL STARTING READ BUFFER ADDRESS
 7453   043262  012737  177700  045054          MOV     #177700,T24RB+2         ;CREATE ILLEGAL ADDRESS
 7454
 7455                           ;*****************************************************************************
 7456                           ;
 7457                           ;LEGAL MODE,ACK,CVC=1,READ COMMAND
 7458                           ;
 7459                           ;*****************************************************************************
 7460
 7461   043270  012737  140001  045050          MOV     #140001,T24PK3          ;LEGAL MODE,ACK,CVC=1,READ COMMAND
 7462   043276  012704  045050                  MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 7463   043302  012737  000400  045056          MOV     #256.,T24SZ             ;SET UP RECORD SIZE IN PACKET
 7464   043310  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 7465   043314  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR!BIT1!BIT2 TO SET
 7466   043320  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 7467   043324  012702  100206                  MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
 7468   043330  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 7469   043332  001406                          BEQ     75$                     ;BR, IF OK
 7470   043334  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 7474   043340                                  ERRHRD  ERRNO,T24WDG,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
        043340  104456                                                          TRAP    C$ERHRD
        043342  000730                                                          .WORD   472
        043344  045222                                                          .WORD   T24WDG
        043346  012136                                                          .WORD   PKTSSR
 7475   043350                          75$:    CKLOOP                          ;LOOP IF SELECTED
        043350  104406                                                          TRAP    C$CLP1
 7476
 7477                           ;*****************************************************************************
 7478                           ;
 7479                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 7480                           ;
 7481                           ;*****************************************************************************
 7482
 7483   043352  013701  044750                  MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
 7484   043356  010102                          MOV     R1,R2                   ;SET UP EXPECTED
 7485   043360  052702  000400                  BIS     #BIT8,R2                ;SET THE ILA BIT IN EXPECTED
 7486   043364  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 7487   043366  001406                          BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
 7488   043370  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 7492   043374                                  ERRHRD  ERRNO,T24ILA,EXPREC     ;THE ILA BIT WAS NOT SET IN XST0
        043374  104456                                                          TRAP    C$ERHRD
        043376  000731                                                          .WORD   473
        043400  045452                                                          .WORD   T24ILA
        043402  015564                                                          .WORD   EXPREC
 7493   043404                          180$:   CKLOOP
        043404  104406                                                          TRAP    C$CLP1
 7494   043406                                  ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
        043406                                                                  L10065:
        043406  104403                                                          TRAP    C$ESUB
 7495   043410  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
 7496   043416  103402                          BLO     999$                            ;BR, IF LESS THAN 25
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
7497 043420  004737  017272                    JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
7498 043424                             999$:
7499
7500                                    ;*
7501                                    ;
7502                                    ;TEST 4, SUBTEST 12
7503                                    ;
7504                                    ;VERIFIES THAT A DATA BUFFER ADDRESS REFERENCING
7505                                    ;NONEXISTANT MEMORY CAUSES RECOVERABLE ERROR
7506                                    ;TERMINATION (TC=4), WITH THE NXM BIT SET IN THE TSSR, AND
7507                                    ;THAT THE TAPE IS ULTIMATELY POSITIONED PROPERLY.
7508                                    ;-
7509
7510 043424                                    BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
     043424                                                                                    T4.12:
     043424  104402                                                                              TRAP    C$BSUB
7511 043426  005737  003126                    TST     NXMFLG                  ;DO WE HAVE IT?
7512 043432  001002                            BNE     10$                     ;BR, IF  ENOUGH
7513 043434  000137  043672                    JMP     80$                     ;SKIP THIS TEST IF NOT
7514 043440  004737  047544             10$:   JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
7515 043444  004737  047410                    JSR     PC,T24REST              ;SET COMMAND PACKET
7516 043450  004737  047502                    JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
7517
7518                                    ;*****************************************************************************
7519                                    ;
7520                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
7521                                    ;
7522                                    ;*****************************************************************************
7523
7524 043454  004737  016064                    JSR     PC,SOFINI               ;DO INITIALIZE ON CONTROLLER
7525 043460  103407                            BCS     20$                     ;BR IF INIT WAS OK
7526 043462  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7530 043466  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
7531 043470                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     043470  104455                                                                            TRAP    C$ERDF
     043472  000732                                                                            .WORD   474
     043474  003650                                                                            .WORD   SFIERR
     043476  012124                                                                            .WORD   SFIMSG
7532 043500                             20$:
7533 043500  013737  002172  044740              MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
7534 043506  012704  044720                    MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
7535
7536                                    ;*****************************************************************************
7537                                    ;
7538                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
7539                                    ;
7540                                    ;*****************************************************************************
7541
7542 043512  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
7543 043516  103407                            BCS     24$                     ;BR, IF COMMAND ISSUED OK
7544 043520  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7548 043524  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
7549 043526                                    ERRWRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     043526  104456                                                                            TRAP    C$ERWRD
     043530  000733                                                                            .WORD   473
     043532  005054                                                                            .WORD   WRTMSG
     043534  012124                                                                            .WORD   SFIMSG
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
7550 043536                          24$:    CKLOOP                          ;LOOP IF SELECTED
     043536 104406                                                                TRAP    C$CLP1
7551 043540 012701 160000                    MOV     #160000,R1              ;NXM LOW ADDRESS START
7552 043544 012702 177776                    MOV     #177776,R2              ;LIMIT CHECK FOR NXM (HIGHEST)
7553 043550 004737 016466                    JSR     PC,XNXM                 ;LOOK FOR NXM ADDRESS
7554 043554 103046                           BCC     80$                     ;BR, IF NON FOUND
7555 043556 010137 003130                    MOV     R1,NXMLO                ;SET ADDRESS UP FOR TEST
7556 043562 013737 003130 045052             MOV     NXMLO,T24RB             ;SET TO NXM MEMORY ADDRESS
7557 043570 005037 045054                    CLR     T24RB+2                 ;SET TO 16 BITS ADDRESSING
7558
7559                                 ;*************************************************************************
7560                                 ;
7561                                 ;READ, ACK, CVC=1, COMMAND
7562                                 ;
7563                                 ;*************************************************************************
7564
7565 043574 012737 140001 045050 30$:    MOV     #140001,T24PK3          ;READ, ACK, CVC=1, COMMAND
7566 043602 012704 045050                    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7567 043606 C12737 000400 045056             MOV     #256.,T24SZ             ;SET UP RECORD SIZE IN PACKET
7568 043614 010465 000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7569 043620 004737 016340                    JSR     PC,WAITF                ;WAIT FOR SSR!BIT1!BIT2 TO SET
7570 043624 016501 000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7571 043630 012702 104210                    MOV     #SSR!SC!NXM!BIT3,R2             ;SET UP EXPECTED
7572 043634 020102                           CMP     R1,R2                   ;ARE THEY EQUAL
7573 043636 001414                           BEQ     75$                     ;BR, IF OK
7574 043640 005237 045054                    INC     T24RB+2                 ;BUMP TO NEXT ADDRESSING RANGE
7575 043644 023727 045054 000004             CMP     T24RB+2,#4              ;CHECK FOR OVERFLOW
7576 043652 001350                           BNE     30$                     ;BR, IF STILL IN 16-18 BIT RANGE
7577 043654 005237 002212                    INC     FATFLG                  ;BUMP COUNT
7581 043660                                  ERRHRD  ERRNO,T24NXM,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     043660 104456                                                                TRAP    C$ERHRD
     043662 000734                                                                .WORD   476
     043664 045311                                                                .WORD   T24NXM
     043666 012136                                                                .WORD   PKTSSR
7582 043670                          75$:    CKLOOP                          ;LOOP IF SELECTED
     043670 104406                                                                TRAP    C$CLP1
7583 043672                          80$:
7584 043672                                  ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     043672                                                                       L10066:
     043672 104403                                                                TRAP    C$ESUB
7585 043674 023727 002212 000017             CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
7586 043702 103402                           BLO     999$                            ;BR, IF LESS THAN 25
7587 043704 004737 017272                    JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
7588 043710                          999$:
7589
7590                                 ;+
7591                                 ;
7592                                 ;TEST 4, SUBTEST 13
7593                                 ;
7594                                 ;VERIFIES THAT A READ REVERSE COMMAND ISSUED WHILE THE
7595                                 ;TAPE IS AT BOT RESULTS IN FUNCTION REJECT TERMINATION
7596                                 ;WITH THE NONEXECUTABLE FUNCTION (NEF) ERROR BIT SET
7597                                 ;
7598                                 ;
7599                                 ;
7600                                 ;-
7601
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
7602 043710                              BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
     043710                                                                       T4.13:
     043710  104402                                                                TRAP    C$BSUB
7603 043712  004737  047544              JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
7604 043716  004737  047410              JSR     PC,T24REST              ;SET COMMAND PACKET
7605 043722  004737  047502              JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
7606
7607                                 ;*************************************************************************
7608                                 ;
7609                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
7610                                 ;
7611                                 ;*************************************************************************
7612
7613 043726  004737  016064              JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
7614 043732  103407                      BCS     20$                     ;BR IF INIT WAS OK
7615 043734  005237  002212              INC     FATFLG                  ;BUMP COUNT
7619 043740  010001                      MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
7620 043742                              ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     043742  104455                                                                TRAP    C$ERDF
     043744  000735                                                                .WORD   477
     043746  003650                                                                .WORD   SFIERR
     043750  012124                                                                .WORD   SFIMSG
7621 043752                          20$:
7622 043752  013737  002172  044740      MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
7623 043760  012704  044720              MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
7624
7625                                 ;*************************************************************************
7626                                 ;
7627                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
7628                                 ;
7629                                 ;*************************************************************************
7630
7631 043764  004737  010752              JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
7632 043770  103407                      BCS     24$                     ;BR, IF COMMAND ISSUED OK
7633 043772  005237  002212              INC     FATFLG                  ;BUMP COUNT
7637 043776  010001                      MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
7638 044000                              ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     044000  104456                                                                TRAP    C$ERHRD
     044002  000736                                                                .WORD   478
     044004  005054                                                                .WORD   WRTMSG
     044006  012124                                                                .WORD   SFIMSG
7639 044010                          24$:    CKLOOP                          ;LOOP IF SELECTED
     044010  104406                                                                TRAP    C$CLP1
7640
7641                                 ;*************************************************************************
7642                                 ;
7643                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7644                                 ;
7645                                 ;*************************************************************************
7646
7647 044012  004737  011104              JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7648 044016  004737  016426              JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
7649 044022  103407                      BCS     30$                     ;BR, IF NO PROBLEM
7650 044024  010001                      MOV     R0,R1                   ;SAVE TSSR
7651 044026  005237  002212              INC     FATFLG                  ;BUMP COUNT
7655 044032                              ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     044032  104456                                                                TRAP    C$ERHRD
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
044034  000737                                                          .WORD   479
044036  046206                                                          .WORD   T24RWN
044040  012136                                                          .WORD   PKTSSR
7656 044042                          30$:    CKLOOP                     ;LOOP IF SELECTED
044042  104406                                                          TRAP    C$CLP1
7657 044044  012703  000400                  MOV     #256.,R3           ;RECORD SIZE
7658 044050  013737  003114  045052          MOV     FREE,T24RB         ;STARTING WRITE BUFFER ADDRESS
7659
7660                                 ;*****************************************************************
7661                                 ;
7662                                 ;READ REVERSE DATA,ACK COMMAND
7663                                 ;
7664                                 ;*****************************************************************
7665
7666 044056  012737  100401  045050          MOV     #100401,T24PK3     ;READ REVERSE DATA,ACK COMMAND
7667 044064  012704  045050                  MOV     #T24PK3,R4         ;SET UP R4 WITH PACKET ADDRESS
7668 044070                          65$:
7669 044070  010337  045056                  MOV     R3,T24SZ           ;SET UP RECORD SIZE IN PACKET
7670 044074  C10465  000000                  MOV     R4,TSDB(R5)        ;ISSUE COMMAND
7671 044100  004737  016340                  JSR     PC,WAITF           ;WAIT FOR SSR TO SET
7672 044104  016501  000002                  MOV     TSSR(R5),R1        ;GET TSSR CONTENTS
7673 044110  012702  100206                  MOV     #SSR!SC!BIT1!BIT2,R2 ;SET UP EXPECTED
7674 044114  020102                          CMP     R1,R2              ;ARE THEY EQUAL
7675 044116  001406                          BEQ     75$                ;BR, IF OK
7676 044120  005237  002212                  INC     FATFLG             ;BUMP COUNT
7680 044124                                  ERRHRD  ERRNO,T24WDE,PKTSSR ;TSSR INCORRECT AFTER READ DATA
044124  104456                                                          TRAP    C$ERHRD
044126  000740                                                          .WORD   480
044130  045651                                                          .WORD   T24WDE
044132  012136                                                          .WORD   PKTSSR
7681 044134                          75$:    CKLOOP                     ;LOOP IF SELECTED
044134  104406                                                          TRAP    C$CLP1
7682
7683                                 ;*****************************************************************
7684                                 ;
7685                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7686                                 ;
7687                                 ;*****************************************************************
7688
7689 044136  013701  044750                  MOV     T24BFR+6,R1        ;GET MESSAGE BUFFER
7690 044142  010102                          MOV     R1,R2              ;SET UP EXPECTED
7691 044144  052702  002000                  BIS     #BIT10,R2          ;SET THE NEF BIT IN EXPECTED
7692 044150  020102                          CMP     R1,R2              ;ARE THEY EQUAL
7693 044152  001406                          BEQ     180$               ;BR, IF EQUAL (ALL IS WELL)
7694 044154  005237  002212                  INC     FATFLG             ;BUMP COUNT
7698 044160                                  ERRHRD  ERRNO,T24NEF,EXPREC ;THE RLL BIT WAS NOT SET IN XST0
044160  104456                                                          TRAP    C$ERHRD
044162  000741                                                          .WORD   481
044164  045100                                                          .WORD   T24NEF
044166  015564                                                          .WORD   EXPREC
7699 044170                          180$:   CKLOOP
044170  104406                                                          TRAP    C$CLP1
7700 044172                                  ENDSUB                     ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
044172                                                                  L10067:
044172  104403                                                          TRAP    C$ESUB
7701 044174  023727  002212  000017          CMP     FATFLG,#15.                ;IS ERROR COUNT AT 25
7702 044202  103402                          BLO     999$                       ;BR, IF LESS THAN 25
```

```
TEST  4: BASIC READ DATA (FORWARD AND REVERSE)

 7703 044204  004737  017272                    JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
 7704 044210                              999$:
 7705
 7706                                     ;*
 7707                                     ;
 7708                                     ;TEST 4, SUBTEST 14
 7709                                     ;
 7710                                     ;VERIFIES THAT A READ REVERSE COMMAND ISSUED WHILE THE
 7711                                     ;TAPE IS POSITIONED BEFORE THE FIRST RECORD ON TAPE
 7712                                     ;(BUT NOT AT BOT) RESULTS IN TAPE STATUS ALERT.
 7713                                     ;
 7714                                     ;
 7715                                     ;
 7716                                     ;-
 7717
 7718 044210                                     BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
      044210                                                                                     T4.14:
      044210  104402                                                                       TRAP    C$BSUB
 7719 044212  C04737  047544                    JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
 7720 044216  004737  047410                    JSR     PC,T24REST              ;SET COMMAND PACKET
 7721 044222  004737  047502                    JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
 7722
 7723                                     ;*************************************************************************
 7724                                     ;
 7725                                     ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
 7726                                     ;
 7727                                     ;*************************************************************************
 7728
 7729 044226  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
 7730 044232  103407                            BCS     20$                     ;BR IF INIT WAS OK
 7731 044234  005237  002212                    INC     FATFLG                  ;BUMP COUNT
 7735 044240  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
 7736 044242                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      044242  104455                                                                         TRAP    C$ERDF
      044244  000742                                                                        .WORD   482
      044246  003650                                                                        .WORD   SFIERR
      044250  012124                                                                        .WORD   SFIMSG
 7737 044252                              20$:
 7738 044252  013737  002172  044740                MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
 7739 044260  012704  044720                    MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 7740
 7741                                     ;*************************************************************************
 7742                                     ;
 7743                                     ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 7744                                     ;
 7745                                     ;*************************************************************************
 7746
 7747 044264  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 7748 044270  103407                            BCS     24$                     ;BR, IF COMMAND ISSUED OK
 7749 044272  005237  002212                    INC     FATFLG                  ;BUMP COUNT
 7753 044276  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 7754 044300                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      044300  104456                                                                         TRAP    C$ERHRD
      044302  000743                                                                        .WORD   483
      044304  005054                                                                        .WORD   WRTMSG
      044306  012124                                                                        .WORD   SFIMSG
 7755 044310                              24$:   CKLOOP                          ;LOOP IF SELECTED
```

```
044310  104406                                                                  TRAP    C$CLP1

                                ;*****************************************************************
                                ;
                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                ;
                                ;*****************************************************************

044312  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
044316  004737  016426                  JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
044322  103407                          BCS     30$                     ;BR, IF NO PROBLEM
044324  010001                          MOV     R0,R1                   ;SAVE TSSR
044326  005237  002212                  INC     FATFLG                  ;BUMP COUNT
044332                                  ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
044332  104456                                                                  TRAP    C$ERHRD
044334  000744                                                                  .WORD   484
044336  046206                                                                  .WORD   T24RWN
044340  012136                                                                  .WORD   PKTSSR
044342                          30$:    CKLOOP                          ;LOOP IF SELECTED
044342  104406                                                                  TRAP    C$CLP1
044344  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
044350  013737  003114  045052          MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS

                                ;*****************************************************************
                                ;
                                ;WRITE DATA,ACK,CVC=1 COMMAND
                                ;
                                ;*****************************************************************

044356  012737  140005  045050          MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
044364  012704  045050                  MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
044370                          65$:
044370  010337  045056                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
044374  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
044400  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
044404  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
044410  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
044414  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
044416  001406                          BEQ     75$                     ;BR, IF OK
044420  005237  002212                  INC     FATFLG                  ;BUMP COUNT
044424                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
044424  104456                                                                  TRAP    C$ERHRD
044426  000745                                                                  .WORD   485
044430  005111                                                                  .WORD   WRTERR
044432  012136                                                                  .WORD   PKTSSR
044434                          75$:    CKLOOP                          ;LOOP IF SELECTED
044434  104406                                                                  TRAP    C$CLP1
044436  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
044442  013737  003114  045052          MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS

                                ;*****************************************************************
                                ;
                                ;READ REVERSE DATA,ACK COMMAND
                                ;
                                ;*****************************************************************

044450  012737  100401  045050          MOV     #100401,T24PK3          ;READ REVERSE DATA,ACK COMMAND
```

TEST  4: BASIC READ DATA (FORWARD AND REVERSE)

```
7808 044456  012704  045050          165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7809 044462  010337  045056                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
7810 044466  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7811 044472  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7812 044476  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7813 044502  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
7814 044506  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
7815 044510  001406                          BEQ     170$                    ;BR, IF OK
7816 044512  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7820 044516                                  ERRHRD  ERRNO,T24TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     044516  104456                                                              TRAP    C$ERHRD
     044520  000746                                                              .WORD   486
     044522  047254                                                              .WORD   T24TRL
     044524  012136                                                              .WORD   PKTSSR
7821 044526                          170$:   CKLOOP                          ;LOOP IF SELECTED
     044526  104406                                                              TRAP    C$CLP1
7822 044530  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
7823 044534  013737  003114  045052          MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
7824
7825                                 ;******************************************************************************
7826                                 ;
7827                                 ;READ REVERSE DATA,ACK COMMAND
7828                                 ;
7829                                 ;******************************************************************************
7830
7831 044542  012737  100401  045050          MOV     #100401,T24PK3          ;READ REVERSE DATA,ACK COMMAND
7832 044550  012704  045050          195$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7833 044554  010337  045056                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
7834 044560  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7835 044564  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7836 044570  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7837 044574  012702  100204                  MOV     #SSR!SC!BIT2,R2                 ;SET UP EXPECTED
7838 044600  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
7839 044602  001406                          BEQ     200$                    ;BR, IF OK
7840 044604  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7844 044610                                  ERRHRD  ERRNO,T24TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     044610  104456                                                              TRAP    C$ERHRD
     044612  000747                                                              .WORD   487
     044614  047254                                                              .WORD   T24TRL
     044616  012136                                                              .WORD   PKTSSR
7845 044620                          200$:   CKLOOP                          ;LOOP IF SELECTED
     044620  104406                                                              TRAP    C$CLP1
7846 044622  013701  044756                  MOV     T24BFR+14,R1            ;GET MESSAGE BUFFER (XST3)
7847 044626  010102                          MOV     R1,R2                   ;SET UP EXPECTED
7848 044630  052702  000001                  BIS     #BIT0,R2                ;SET THE RIB BIT IN EXPECTED
7849 044634  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
7850 044636  001406                          BEQ     210$                    ;BR, IF EQUAL (ALL IS WELL)
7851 044640  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7855 044644                                  ERRHRD  ERRNO,T24LOR,EXPREC     ;THE RIB BIT WAS NOT SET IN XST0
     044644  104456                                                              TRAP    C$ERHRD
     044646  000750                                                              .WORD   488
     044650  045152                                                              .WORD   T24LOR
     044652  015564                                                              .WORD   EXPREC
7856 044654                          210$:   CKLOOP
     044654  104406                                                              TRAP    C$CLP1
7857 044656                                  ENDSUB                  ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     044656                                                                  L10070:
```

```
044656  104403                                                                  TRAP    C$ESUB
044660  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
044666  103402                          BLO     999$                            ;BR, IF LESS THAN 25
044670  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
044674                          999$:
                                ;
                                ;
                                ;
044674  004737  016546                  JSR     PC,TSTLOOP                      ;DO WE NEED TO ITERATE TEST
044700  103002                          BCC     163$                            ;BR, IF NO LOOP REQUIRED
044702  000137  035376                  JMP     T24LOOP                         ;EXECUTE AGAIN
044706                          163$:
044706                                  EXIT    TST                             ;ALL DONE THIS TEST
044706  104432                                                                  TRAP    C$EXIT
044710  002664                                                                  .WORD   L10052-.

                                ;+
                                ;LOCAL STORAGE FOR THIS TEST
                                ;-
044712                                  .BLKB   10-<.-TSV2&7>
044720                          T24PACKET:                                      ;COMMAND PACKET FOR TEST
044720  100204                          .WORD   100204                          ;WRITE CHARACTERISTICS COMMAND, WITH IE, ACK
044722  044730                          .WORD   T24DATA                         ;ADDRESS OF CHARACTERISTICS BLOCK
044724  000000                          .WORD   0
044726  000012                          .WORD   10.                             ;STARTING VALUE OF BLOCK SIZE
044730                          T24DATA:                                        ;CHARACTERISTICS DATA BLOCK
044730  044742                          .WORD   T24BFR                          ;ADDRESS OF MESSAGE BUFFER
044732  000000                          .WORD   0
044734  000024                          .WORD   20.                             ;LENGTH OF MESSAGE BUFFER
044736  000000                          .WORD   0
044740  000000                  T24DSW: .WORD   0                               ;DRIVE SELECTION BITS 2-0
044742                          T24BFR: .BLKW   25.                             ;MESSAGE BUFFER
                                ;
                                ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
                                ;
045024                                  .BLKB   10-<.-TSV2&7>
045030                          T24PK2:
045030  100206                          .WORD   100206                          ;WRITE SUB SYS MEM COMMAND, IE AND ACK
045032  045060                          .WORD   T24BF2                          ;ADDRESS OF SELECT BLOCK DATA
045034  000000                          .WORD   0
045036  000006                          .WORD   6.                              ;SIZE OF DATA PACKET

045040                                  .BLKB   10-<.-TSV2&7>
045050                          T24PK3:
045050  100205                          .WORD   100205                          ;READ COMMAND, IE AND ACK
045052                          T24RB:
045052  003114                  T24WB:  .WORD   FREE                            ;ADDRESS OF WRITE BUFFER
045054  000000                          .WORD   0
045056  000000                  T24SZ:  .WORD   0                               ;SIZE OF BUFFER (EXTENT)
                                        .EVEN
                                ;
                                ;
                                ;
045060                          T24BF2:
045060     010                  T24BS0: .BYTE   10                              ;BSEL0 AREA
045061     200                  T24BS1: .BYTE   200                             ;BSEL1 AREA
045062  000000                  T24S2:  .WORD   0                               ;SEL 2 AREA
```

TEST  4: BASIC READ DATA (FORWARD AND REVERSE)

```
7918 045064  000000                T24S3:  .WORD   0                       ;DATA AREA
7919                                ;
7920                                ;
7921                                        .EVEN
7922                                ;TAPE MOTION PACKET COMMAND VALUES
7923
7924 045066  100005                T24RN:  .WORD   100005                  ;READ DATA (NEXT)
7925 045070  100405                T24WDR: .WORD   100405                  ;READ DATA RETRY
7926 045072  102005                T24CON: .WORD   102005                  ;WRITE CONTINOUS
7927 045074  177777                        .WORD   177777                  ;END OF DATA
7928 045076  000000                T24DLY: .WORD   0                       ;DELAY STORAGE AREA
7929
7930
7931                                ;+
7932                                ;LOCAL TEXT MESSAGES FOR TEST
7933                                ;-
7934
7935 045100      116     105     106  T24NEF: .ASCIZ  'NEF Not Set After NON-EXECUTABLE FUNCTION'
7936 045152      122     111     102  T24LOR: .ASCIZ  'RIB Not Set After READ REVERSE Into BOT'
7937 045222      124     123     123  T24WDG: .ASCIZ  'TSSR Not Correct After Illegal Buffer Address Bits Set'
7938 045311      124     123     123  T24NXM: .ASCIZ  'TSSR Not Correct After NXM Memory Address In Packet'
7939 045375      124     123     123  T24WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
7940 045452      111     154     154  T24ILA: .ASCIZ  'Illegal Address Bits, Failed To Set ILA Bit In XSTO'
7941 045536      111     154     154  T24LOG: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
7942 045617      122     105     101  T24SSR: .ASCIZ  'READ COMMAND Not Accepted'
7943 045651      124     123     123  T24WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA Command'
7944 045723      124     141     160  T24BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
7945 045770      104     141     164  T24DTA: .ASCIZ  'Data Written To Tape Not Equal To Data Read From Tape'
7946 046056      122     105     101  T24EOT: .ASCIZ  'READ DATA OVER EOT GAVE NO TAPE STATUS ALERT'
7947 046133      124     123     123  T24TM:  .ASCIZ  'TSSR Not Correct After READ COMMAND Reject'
7948 046206      122     145     167  T24RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
7949 046255      122     101     115  T24RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
7950 046330      124     123     123  T24AM3: .ASCIZ  'TSSR Init. Failed After READ COMMAND'
7951 046375      104     162     151  T24OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
7952 046450      124     123     123  T24WDD: .ASCIZ  'TSSR Not Correct After READ DATA Command, SWB Bit Set'
7953 046536      124     123     123  T24WDC: .ASCIZ  'TSSR Not Correct After READ DATA Command'
7954 046607      103     126     103  T24VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
7955 046662      124     123     102  T24BA:  .ASCIZ  'TSBA Not Correct After READ DATA Command'
7956 046733      127     122     111  T24WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
7957 047022      122     145     141  T24LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XSTO'
7958 047104      122     145     141  T24LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XSTO'
7959 047166      122     145     163  T24PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
7960 047254      122     145     141  T24TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert'
7961 047342      102     141     163  TST24ID:        .ASCIZ  'Basic Read Data (Forward and Reverse)'
7962                                        .EVEN
7963                                ;+
7964                                ;
7965                                ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
7966                                ;WRITE SUBSYSTEM MEMORY COMMAND
7967                                ;
7968                                ;-
7969
7970 047410                         T24REST:
7971 047410                                 SAVREG                          ;SAVE THE REGISTERS
7972 047414  012701  044720                MOV     #T24PACKET,R1           ;START OF THE PACKET
7973 047420  012721  100004                MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK.
7974 047424  012721  044730                MOV     #T24DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
7975 047430  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
7976 047432  012721  000012                MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
7977 047436  012721  044742                MOV     #T24BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
7978 047442  005021                        CLR     (R1)+
7979 047444  012721  000024                MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
7980 047450  005021                        CLR     (R1)+
7981 047452  012711  000000                MOV     #0,(R1)                 ;SELECT DRIVE ZERO
7982 047456  012702  000030                MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
7983 047462  012762  177777  044742  64$:  MOV     #177777,T24BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
7984 047470  005742                        TST     -(R2)                   ;NEXT LOCATION
7985 047472  022702  000000                CMP     #0,R2                   ;CKECK FOR END OF LOOP
7986 047476  001371                        BNE     64$                     ;KEEP GOING UNTIL DONE
7987 047500  000207                        RTS     PC                      ;RETURN
7988
7989
7990 047502                        T24RT2:
7991 047502                                SAVREG                          ;SAVE THE REGISTERS
7992 047506  012701  045030                MOV     #T24PK2,R1              ;START OF THE PACKET
7993 047512  012721  100206                MOV     #100206,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK, IE
7994 047516  012721  045060                MOV     #T24BF2,(R1)+           ;ADDRESS OF DATA BLOCK
7995 047522  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
7996 047524  012721  000006                MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
7997 047530  005021                        CLR     (R1)+
7998 047532  012701  045060                MOV     #T24BF2,R1              ;POINT TO DATA SEL AREA
7999 047536  005021                        CLR     (R1)+
8000 047540  005011                        CLR     (R1)
8001 047542  000207                        RTS     PC                      ;RETURN
8002 047544                        T24RT3:
8003 047544                                SAVREG                          ;SAVE THE REGISTERS
8004 047550  012701  045050                MOV     #T24PK3,R1              ;START OF THE PACKET
8005 047554  012721  000000                MOV     #0,(R1)+                ;CLEAR AREA OUT
8006 047560  012721  000000                MOV     #0,(R1)+                ;ADDRESS OF DATA BLOCK
8007 047564  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
8008 047566  012711  000000                MOV     #0,(R1)                 ;SIZE OF DATA BLOCK IN BYTES
8009 047572  000207                        RTS     PC                      ;RETURN
8010 047574                                ENDTST
     047574                                                        L10052:
     047574  104401                                                    TRAP    C$ETST
8011
8012                                .SBTTL  TEST  5: SPACE RECORDS
8013                        ;+
8014                        ;
8015                        ;THIS TEST VERIFIES THAT THE SPACE RECORDS FORWARD AND SPACE
8016                        ;RECORDS REVERSE POSITION COMMANDS OPERATE PROPERLY WHEN SPACING
8017                        ;OVER NORMAL DATA RECORDS. OPERATION WHEN SPACING OVER TAPE MARKS
8018                        ;IS VERIFIED IN A SUBSEQUENT TEST. THE BASIC WRITE DATA TEST
8019                        ;SHOULD HAVE BEEN RUN SUCCESSFULLY FOR THIS TEST TO PRODUCE MEANINGFUL
8020                        ;RESULTS. THIS TEST CONSISTS OF A SERIES OF SUBTESTS. IN EACH
8021                        ;OF THE SUBTESTS, THE TAPE IS ENTIRELY WRITTEN WITH RECORDS
8022                        ;OF VARYING SIZES AND DATA CONTENT; THE FIRST 4 BYTES OF EACH
8023                        ;RECORD INDICATE THAT RECORD'S RELATIVE POSITION ON TAPE. AFTER
8024                        ;EACH SPACING OPERATION, THE TAPE POSITION IS VERIFIED BY READING
8025                        ;THE NEXT OR PREVIOUS RECORD AND COMPARING THE POSITION DATA WITH
8026                        ;THE EXPECTED RESULT.
8027                        ;
8028                        ;
8029                        ;THE TEST CONSISTS OF THE FOLLOWING 8 SUBTESTS
```

TEST 5: SPACE RECORDS

```
8030                                    ;
8031                                    ;
8032                                    ;
8033                                    ;-
8034 047576                                     BGNTST
     047576                                                                  T5::
8035 047576  012737  006446  002170              MOV     #EPRT2,EPRTSW       ;SECONDARY ERROR MESSAGE
8040 047604  004737  017364                      JSR     PC,KTOFF            ;DON'T NEED LOTS OF MEMORY
8041 047610  012700  056320                      MOV     #TST25ID,R0         ;ASCII MESSAGE TO IDENTIFY TEST
8042 047614  004737  016600                      JSR     PC,TSTSETUP         ;DO INITIAL TEST SETUP
8043 047620  012737  000005  002206              MOV     #5,LOOPCNT          ;PERFORM 5 ITERATIONS
8044                                    ;+
8045                                    ;
8046                                    ;TEST 5, SUBTEST 1
8047                                    ;
8048                                    ;
8049                                    ;VERIFIES THAT A SPACE RECORDS FORWARD COMMAND WITH
8050                                    ;THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF
8051                                    ;THE VOLUME CHECK (VCK) FLAG IS SET.
8052                                    ;
8053                                    ;
8054                                    ;-
8055
8056 047626                             T25LOOP:
8057 047626                                     BGNSUB                      ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
     047626                                                                  T5.1:
     047626  104402                                                                  TRAP    C$BSUB
8058 047630  004737  056336                      JSR     PC,T25REST          ;SET COMMAND PACKET
8059 047634  005037  055150                      CLR     T25CNT              ;CLEAR THE RECORD COUNTER AREA
8060 047640  004737  056430                      JSR     PC,T25RT2           ;SET UP OTHER COMMAND PACKET
8061 047644  004737  056472                      JSR     PC,T25RT3           ;SET UP OTHER COMMAND PACKET
8062 047650  012737  176750  055152              MOV     #65000.,T25DLY      ;SET UP LOOP COUNTER
8063
8064                                    ;*************************************************************************
8065                                    ;
8066                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
8067                                    ;
8068                                    ;*************************************************************************
8069
8070 047656  004737  016064          5$:         JSR     PC,SOFINIT          ;DO INITIALIZE ON CONTROLLER
8071 047662  103427                             BCS     10$                 ;BR IF INIT WAS OK
8072 047664                                     DELAY   250                 ;DELAY IF REQUIRED
     047664  012727  000250                                                                  MOV     #250.,(PC)+
     047670  000000                                                                          .WORD   0
     047672  013727  002116                                                                  MOV     L$DLY,(PC)+
     047676  000000                                                                          .WORD   0
     047700  005367  177772                                                                  DEC     -6(PC)
     047704  001375                                                                          BNE     .-4
     047706  005367  177756                                                                  DEC     -22(PC)
     047712  001367                                                                          BNE     .-20
8073 047714  005337  055152                      DEC     T25DLY              ;DEC DELAY COUNTER
8074 047720  001356                              BNE     5$                          ;BR, IF LOOP IS REQUIRED
8075 047722  005237  002212                      INC     FATFLG              ;BUMP COUNT
8079 047726  016501  000002                      MOV     TSSR(R5),R1         ;CONTENTS OF TSSR REGISTER
8080 047732                                     ERRDF   ERRNO,SFIERR,SFIMSG ;FATAL ERROR TSSR WAS NOT OK
     047732  104455                                                                  TRAP    C$ERDF
     047734  000765                                                                  .WORD   501
```

```
     047736  003650                                                                  .WORD   SFIERR
     047740  012124                                                                  .WORD   SFIMSG
     047742                          10$:
     047742  013737  002172  055010          MOV     UNITN,T25DSW            ;SET UP DRIVE NUMBER
     047750  012704  054770                  MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                     ;*******************************************************************
                                     ;
                                     ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                     ;
                                     ;*******************************************************************

     047754  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
     047760  103407                          BCS     15$                     ;BR, IF COMMAND ISSUED OK
     047762  005237  002212                  INC     FATFLG                  ;BUMP COUNT
     047766  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
     047770                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     047770  104456                                                                  TRAP    C$ERHRD
     047772  C00766                                                                  .WORD   502
     047774  005054                                                                  .WORD   WRTMSG
     047776  012124                                                                  .WORD   SFIMSG

                                     ;*******************************************************************
                                     ;
                                     ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                     ;
                                     ;*******************************************************************

     050000                          15$:    CKLOOP
     050000  104406                                                                  TRAP    C$CLP1
     050002  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
     050006  103407                          BCS     30$                     ;BR, IF NO PROBLEM
     050010  010001                          MOV     R0,R1                   ;SAVE TSSR
     050012  005237  002212                  INC     FATFLG                  ;BUMP COUNT
     050016                                  ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
     050016  104456                                                                  TRAP    C$ERHRD
     050020  000767                                                                  .WORD   503
     050022  056125                                                                  .WORD   T25RWN
     050024  012136                                                                  .WORD   PKTSSR
     050026                          30$:    CKLOOP                          ;LOOP IF SELECTED
     050026  104406                                                                  TRAP    C$CLP1

                                     ;*******************************************************************
                                     ;
                                     ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
                                     ;
                                     ;*******************************************************************

     050030  013701  055020                  MOV     T25BFR+6,R1             ;PICK UP XST0
     050034  010102                          MOV     R1,R2                   ;SET UP EXPECTED
     050036  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
     050042  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
     050044  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
     050046  005237  002212                  INC     FATFLG                  ;BUMP COUNT
     050052                                  ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     050052  104456                                                                  TRAP    C$ERHRD
     050054  000770                                                                  .WORD   504
```

```
TEST  5: SPACE RECORDS

        050056  055315                                                          .WORD   T25BOT
        050060  015564                                                          .WORD   EXPREC
 8133   050062                          40$:    CKLOOP                  ;LOOP IF SELECTED
        050062  104406                                                          TRAP    C$CLP1
 8134   050064  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
 8135   050070  013737  003114  055122          MOV     FREE,T25RB              ;STARTING WRITE BUFFER ADDRESS
 8136
 8137                           ;*************************************************************************
 8138                           ;
 8139                           ;WRITE DATA,ACK,CVC=1 COMMAND
 8140                           ;
 8141                           ;*************************************************************************
 8142
 8143   050076  012737  140005  055120          MOV     #140005,T25PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
 8144   050104  012704  055120                  MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 8145   050110                          65$:
 8146   050110  010337  055126                  MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
 8147   050114  013777  055150  132772          MOV     T25CNT,@FREE            ;LOAD UP RECORD COUNTER IN WRT BUFFER
 8148   050122  062737  000001  055150          ADD     #1,T25CNT               ;GET READY FOR NEXT RECORD
 8149   050130  010465  000000                  MOV     R4,TSD8(R5)             ;ISSUE COMMAND
 8150   050134  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 8151   050140  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 8152   050144  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 8153   050150  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 8154   050152  001411                          BEQ     75$                     ;BR, IF OK
 8155   050154  032701  000004                  BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
 8156   050160  001014                          BNE     120$                    ;BR, IF TSA IS SET (SUSPECT IS EOT)
 8157   050162  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 8161   050166                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
        050166  104456                                                          TRAP    C$ERHRD
        050170  000771                                                          .WORD   505
        050172  005111                                                          .WORD   WRTERR
        050174  012136                                                          .WORD   PKTSSR
 8162   050176                          75$:    CKLOOP                  ;LOOP IF SELECTED
        050176  104406                                                          TRAP    C$CLP1
 8163   050200  005203                          INC     R3                      ;BUMP RECORD SIZE
 8164   050202  022703  001000                  CMP     #512.,R3                ;END OF RECORD YET
 8165   050206  001340                          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
 8166   050210  000415                          BR      125$                    ;ENOUGH RECORDS
 8167   050212                          120$:
 8168
 8169                           ;*************************************************************************
 8170                           ;
 8171                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 8172                           ;
 8173                           ;*************************************************************************
 8174
 8175   050212  013701  055020          MOV     T25BFR+6,R1             ;QUICK CHECK FOR EOT SET
 8176   050216  010102                  MOV     R1,R2                   ;SET UP EXPECTED
 8177   050220  052702  000001          BIS     #BIT0,R2                ;SET THE EOT BIT XST0
 8178   050224  020102                  CMP     R1,R2                   ;IS THE EOT BIT SET IN XST0
 8179   050226  001406                  BEQ     125$                    ;BR, IF SET (GOOD)
 8180   050230  005237  002212          INC     FATFLG                  ;BUMP COUNT
 8184   050234                          ERRDF   ERRNO,T25NET,EXPREC     ;DEVICE FATAL NOT EOT FOUND ETC.
        050234  104455                                                  TRAP    C$ERDF
        050236  000772                                                  .WORD   506
        050240  055451                                                  .WORD   T25NET
```

```
     050242  015564                                                                  .WORD   EXPREC
     050244                          125$:

                                     ;*****************************************************************
                                     ;
                                     ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                     ;
                                     ;*****************************************************************

     050244  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
     050250  103407                          BCS     130$                    ;BR, IF NO PROBLEM
     050252  010001                          MOV     R0,R1                   ;SAVE TSSR
     050254  005237  002212                  INC     FATFLG                  ;BUMP COUNT
     050260                                  ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
     050260  104456                                                                  TRAP    C$ERHRD
     050262  000773                                                                  .WORD   507
     050264  056125                                                                  .WORD   T25RWN
     050266  012136                                                                  .WORD   PKTSSR
     050270                          130$:   CKLOOP                          ;LOOP IF SELECTED
     050270  104406                                                                  TRAP    C$CLP1
     050272  012737  000007  055010          MOV     #7,T25DSW               ;SET UP DRIVE NUMBER
     050300  012704  054770                  MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                     ;*****************************************************************
                                     ;
                                     ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                     ;
                                     ;*****************************************************************

     050304  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
     050310  103407                          BCS     140$                    ;BR, IF COMMAND ISSUED OK
     050312  005237  002212                  INC     FATFLG                  ;BUMP COUNT
     050316  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
     050320                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     050320  104456                                                                  TRAP    C$ERHRD
     050322  000774                                                                  .WORD   508
     050324  005054                                                                  .WORD   WRTMSG
     050326  012124                                                                  .WORD   SFIMSG
     050330                          140$:   CKLOOP                          ;SCOPE LOOP
     050330  104406                                                                  TRAP    C$CLP1
     050332  005737  002216                  TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES
     050336  001044                          BNE     160$                    ;BR IF SWITCH IS ON

     050340  112737  000200  055131          MOVB    #200,T25BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
     050346  112737  000010  055130          MOVB    #10,T25BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
     050354  012704  055100                  MOV     #T25PK2,R4              ;WRITE SUBSYS MEM PACKET
     050360  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
     050364  004737  016426                  JSR     PC,CHKTSSR              ;WAIT FOR SSR
     050370  103407                          BCS     150$                    ;BR, IF NO ERROR
     050372  010001                          MOV     R0,R1                   ;ERROR, SAVE TSSR
     050374  005237  002212                  INC     FATFLG                  ;BUMP COUNT
     050400                                  ERRHRD  ERRNO,T25SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
     050400  104456                                                                  TRAP    C$ERHRD
     050402  000775                                                                  .WORD   509
     050404  055154                                                                  .WORD   T25SSR
     050406  012136                                                                  .WORD   PKTSSR
     050410                          150$:   CKLOOP                          ;LOOP IF SELECTED
```

```
     050410  104406                                                                  TRAP    C$CLP1
8236 050412  012737  000007  055010          MOV     #7,T25DSW                ;SET UP DRIVE NUMBER
8237 050420  012704  054770                  MOV     #T25PACKET,R4            ;SUBROUTINE NEEDS PACKET ADDRESS
8238
8239                                 ;*******************************************************************
8240                                 ;
8241                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
8242                                 ;
8243                                 ;*******************************************************************
8244
8245 050424  004737  010752                  JSR     PC,WRTCHR                ;ISSUE WRITE CHARACTERISTICS
8246 050430  103407                          BCS     160$                     ;BR, IF COMMAND ISSUED OK
8247 050432  005237  002212                  INC     FATFLG                   ;BUMP COUNT
8251 050436  010001                          MOV     R0,R1                    ;SAVE CONTENTS OF TSSR
8252 050440                                  ERRHRD  ERRNO,WRTMSG,SFIMSG      ;WRITE CHARACTERISTISC FAILED
     050440  104456                                                                  TRAP    C$ERHRD
     050442  000776                                                                  .WORD   510
     050444  005054                                                                  .WORD   WRTMSG
     050446  012124                                                                  .WORD   SFIMSG
8253 050450                          160$:   CKLOOP                           ;SCOPE LOOP
     050450  104406                                                                  TRAP    C$CLP1
8254 050452  016501  000002                  MOV     TSSR(R5),R1              ;GET TSSR CONTENTS
8255 050456  032701  000100                  BIT     #OFL,R1                  ;CHECK FOR THE OFFLINE BIT SET
8256 050462  001006                          BNE     170$                     ;BR, IF OFFLINE (GOOD)
8257 050464  005237  002212                  INC     FATFLG                   ;BUMP COUNT
8261 050470                                  ERRDF   ERRNO,T25OFL,SFIMSG      ;OFF LINE SHOULD HAVE BEEN SET (BAD)
     050470  104455                                                                  TRAP    C$ERDF
     050472  000777                                                                  .WORD   511
     050474  056174                                                                  .WORD   T25OFL
     050476  012124                                                                  .WORD   SFIMSG
8262 050500                          170$:   CKLOOP                           ;LOOP IF SELECTED
     050500  104406                                                                  TRAP    C$CLP1
8263
8264                                 ;*******************************************************************
8265                                 ;
8266                                 ;SPACE FORWARD COMMAND IN PLACE
8267                                 ;
8268                                 ;*******************************************************************
8269
8270 050502  012737  140010  055120  180$:   MOV     #140010,T25PK3           ;SPACE FORWARD COMMAND IN PLACE
8271 050510  012737  000001  055122          MOV     #1,T25RB                 ;NUMBER OF RECORDS TO SPACE
8272 050516  012704  055120                  MOV     #T25PK3,R4               ;R4 = POINTER TO PACKET
8273 050522  010465  000000                  MOV     R4,TSDB(R5)              ;ISSUE COMMAND
8274 050526  004737  016340                  JSR     PC,WAITF                 ;WAIT FOR SSR TO SET
8275 050532  016501  000002                  MOV     TSSR(R5),R1              ;GET TSSR CONTENTS
8276 050536  012702  100306                  MOV     #SSR!SC!OFL!BIT1!BIT2,R2         ;SET UP EXPECTED
8277 050542  020102                          CMP     R1,R2                    ;ARE THEY EQUAL
8278 050544  001406                          BEQ     190$                     ;BR, IF OK ESP. FUNCTION REJECT
8279 050546  005237  002212                  INC     FATFLG                   ;BUMP COUNT
8283 050552                                  ERRHRD  ERRNO,T25TM,PKTSSR       ;TSSR INCORRECT AFTER TAPE MOTION CMD
     050552  104456                                                                  TRAP    C$ERHRD
     050554  001000                                                                  .WORD   512
     050556  055362                                                                  .WORD   T25TM
     050560  012136                                                                  .WORD   PKTSSR
8284 050562                          190$:   CKLOOP                           ;LOOP IF SELECTED
     050562  104406                                                                  TRAP    C$CLP1
8285 050564                                  ENDSUB                           ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
```

```
      050564                                                                                L10072:
      050564  104403                                                                                TRAP    C$ESUB
      050566  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
      050574  103402                          BLO     999$                            ;BR, IF LESS THAN 25
      050576  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
      050602                          999$:

                                      ;+
                                      ;
                                      ;TEST 5, SUBTEST 2
                                      ;
                                      ;VERIFIES THAT A SPACE RECORDS REVERSE COMMAND WITH
                                      ;THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF
                                      ;THE VOLUME CKECK (VCK) FLAG IS SET.
                                      ;
                                      ;
                                      ;
                                      ;-
      050602                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      050602                                                                                T5.2:
      050602  104402                                                                                TRAP    C$BSUB
      050604  004737  056336                  JSR     PC,T25REST              ;SET COMMAND PACKET
      050610  004737  056472                  JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
      050614  004737  056430                  JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET

                                      ;*******************************************************************
                                      ;
                                      ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                      ;
                                      ;*******************************************************************

      050620  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
      050624  103407                          BCS     10$                     ;BR IF INIT WAS OK
      050626  005237  002212                  INC     FATFLG                  ;BUMP COUNT
      050632  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
      050634                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      050634  104455                                                                                TRAP    C$ERDF
      050636  001001                                                                                .WORD   513
      050640  003650                                                                                .WORD   SFIERR
      050642  012124                                                                                .WORD   SFIMSG
      050644  012737  000007  055010  10$:    MOV     #7,T25DSW               ;SET UP DRIVE NUMBER

      050652  012704  054770                  MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                      ;*******************************************************************
                                      ;
                                      ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                      ;
                                      ;*******************************************************************

      050656  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
      050662  103407                          BCS     15$                     ;BR, IF COMMAND ISSUED OK
      050664  005237  002212                  INC     FATFLG                  ;BUMP COUNT
      050670  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
      050672                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      050672  104456                                                                                TRAP    C$ERHRD
      050674  001002                                                                                .WORD   514
```

TEST 5: SPACE RECORDS

```
        050676  005054                                                                  .WORD   WRTMSG
        050700  012124                                                                  .WORD   SFIMSG
   8339
   8340                                 ;*************************************************************************
   8341                                 ;
   8342                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
   8343                                 ;
   8344                                 ;*************************************************************************
   8345
   8346 050702                          15$:    CKLOOP
        050702  104406                                                                 TRAP    C$CLP1
   8347 050704  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
   8348 050710  103407                          BCS     30$                     ;BR, IF NO PROBLEM
   8349 050712  010001                          MOV     R0,R1                   ;SAVE TSSR
   8350 050714  005237  002212                  INC     FATFLG                  ;BUMP COUNT
   8354 050720                                  ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
        050720  104456                                                                 TRAP    C$ERHRD
        050722  001003                                                                 .WORD   515
        050724  056125                                                                 .WORD   T25RWN
        050726  012136                                                                 .WORD   PKTSSR
   8355 050730                          30$:    CKLOOP                          ;LOOP IF SELECTED
        050730  104406                                                                 TRAP    C$CLP1
   8356 050732  005737  002216          140$:   TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
   8357 050736  001044                          BNE     160$                    ;BR IF SWITCH IS ON
   8358
   8359 050740  112737  000200  055131          MOVB    #200,T25BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
   8360 050746  112737  000010  055130          MOVB    #10,T25BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
   8361 050754  012704  055100                  MOV     #T25PK2,R4              ;WRITE SUBSYS MEM PACKET
   8362 050760  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
   8363 050764  004737  016426                  JSR     PC,CHKTSSR              ;WAIT FOR SSR
   8364 050770  103407                          BCS     150$                    ;BR, IF NO ERROR
   8365 050772  010001                          MOV     R0,R1                   ;ERROR, SAVE TSSR
   8366 050774  005237  002212                  INC     FATFLG                  ;BUMP COUNT
   8370 051000                                  ERRHRD  ERRNO,T25SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
        051000  104456                                                                 TRAP    C$ERHRD
        051002  001004                                                                 .WORD   516
        051004  055154                                                                 .WORD   T25SSR
        051006  012136                                                                 .WORD   PKTSSR
   8371 051010                          150$:   CKLOOP                          ;LOOP IF SELECTED
        051010  104406                                                                 TRAP    C$CLP1
   8372 051012  012737  000007  055010          MOV     #7,T25DSW               ;SET UP DRIVE NUMBER
   8373 051020  012704  054770                  MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
   8374
   8375                                 ;*************************************************************************
   8376                                 ;
   8377                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
   8378                                 ;
   8379                                 ;*************************************************************************
   8380
   8381 051024  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
   8382 051030  103407                          BCS     160$                    ;BR, IF COMMAND ISSUED OK
   8383 051032  005237  002212                  INC     FATFLG                  ;BUMP COUNT
   8387 051036  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
   8388 051040                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        051040  104456                                                                 TRAP    C$ERHRD
        051042  001005                                                                 .WORD   517
        051044  005054                                                                 .WORD   WRTMSG
```

```
     051046  012124                                                                  .WORD   SFIMSG
8389 051050                          160$:   CKLOOP                          ;SCOPE LOOP
     051050  104406                                                                  TRAP    C$CLP1
8390 051052  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8391 051056  032701  000100                  BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
8392 051062  001006                          BNE     170$                    ;BR, IF OFFLINE (GOOD)
8393 051064  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8397 051070                                  ERRDF   ERRNO,T25OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
     051070  104455                                                                  TRAP    C$ERDF
     051072  001006                                                                  .WORD   518
     051074  056174                                                                  .WORD   T25OFL
     051076  012124                                                                  .WORD   SFIMSG
8398 051100                          170$:   CKLOOP                          ;LOOP IF SELECTED
     051100  104406                                                                  TRAP    C$CLP1
8399
8400                                 ;*****************************************************************
8401                                 ;
8402                                 ;SPACE REVERSE COMMAND IN PLACE
8403                                 ;
8404                                 ;*****************************************************************
8405
8406 051102  012737  100410  055120  180$:   MOV     #100410,T25PK3          ;SPACE REVERSE COMMAND IN PLACE
8407 051110  012737  000001  055122          MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE
8408 051116  012704  055120                  MOV     #T25PK3,R4              ;R4 = POINTER TO PACKET
8409 051122  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8410 051126  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8411 051132  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8412 051136  012702  100306                  MOV     #SSR!SC!OFL!BIT1!BIT2,R2        ;SET UP EXPECTED
8413 051142  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8414 051144  001406                          BEQ     190$                    ;BR, IF OK ESP. FUNCTION REJECT
8415 051146  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8419 051152                                  ERRHRD  ERRNO,T25TM,PKTSSR      ;TSSR INCORRECT AFTER TAPE MOTION CMD
     051152  104456                                                                  TRAP    C$ERHRD
     051154  001007                                                                  .WORD   519
     051156  055362                                                                  .WORD   T25TM
     051160  012136                                                                  .WORD   PKTSSR
8420 051162                          190$:   CKLOOP                          ;LOOP IF SELECTED
     051162  104406                                                                  TRAP    C$CLP1
8421 051164                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     051164                                                                          L10073:
     051164  104403                                                                  TRAP    C$ESUB
8422 051166  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
8423 051174  103402                          BLO     999$                            ;BR, IF LESS THAN 25
8424 051176  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
8425 051202                          999$:
8426
8427                                 ;+
8428                                 ;
8429                                 ;TEST 5, SUBTEST 3
8430                                 ;
8431                                 ;VERIFIES THAT SPACE RECORDS FORWARD CAN SPACE ONE
8432                                 ;RECORD OFF BOT AND CAUSES BOT STATUS TO BE CLEARED.
8433                                 ;
8434                                 ;
8435                                 ;
8436                                 ;-
8437 051202                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
```

```
      051202                                                                                  T5.3:
      051202  104402                                                                                  TRAP    C$BSUB
      051204  004737  056336                  JSR     PC,T25REST              ;SET COMMAND PACKET
      051210  004737  056430                  JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
      051214  004737  056472                  JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET

                                      ;*******************************************************************
                                      ;
                                      ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                      ;
                                      ;*******************************************************************

      051220  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
      051224  103407                          BCS     10$                     ;BR IF INIT WAS OK
      051226  005237  002212                  INC     FATFLG                  ;BUMP COUNT
      051232  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
      051234                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      051234  104455                                                                                  TRAP    C$ERDF
      051236  C01010                                                                                  .WORD   520
      051240  003650                                                                                  .WORD   SFIERR
      051242  012124                                                                                  .WORD   SFIMSG
      051244  013737  002172  055010  10$:    MOV     UNITN,T25DSW            ;SET UP DRIVE NUMBER

      051252  012704  054770                  MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                      ;*******************************************************************
                                      ;
                                      ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                      ;
                                      ;*******************************************************************

      051256  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
      051262  103407                          BCS     15$                     ;BR, IF COMMAND ISSUED OK
      051264  005237  002212                  INC     FATFLG                  ;BUMP COUNT
      051270  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
      051272                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      051272  104456                                                                                  TRAP    C$ERHRD
      051274  001011                                                                                  .WORD   521
      051276  005054                                                                                  .WORD   WRTMSG
      051300  012124                                                                                  .WORD   SFIMSG

                                      ;*******************************************************************
                                      ;
                                      ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                      ;
                                      ;*******************************************************************

      051302                          15$:    CKLOOP
      051302  104406                                                                                  TRAP    C$CLP1
      051304  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
      051310  103407                          BCS     30$                     ;BR, IF NO PROBLEM
      051312  010001                          MOV     R0,R1                   ;SAVE TSSR
      051314  005237  002212                  INC     FATFLG                  ;BUMP COUNT
      051320                                  ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
      051320  104456                                                                                  TRAP    C$ERHRD
      051322  001012                                                                                  .WORD   522
      051324  056125                                                                                  .WORD   T25RWN
```

TEST 5: SPACE RECORDS

```
                051326  012136                                                          .WORD   PKTSSR
8490            051330                  30$:    CKLOOP                  ;LOOP IF SELECTED
                051330  104406                                                          TRAP    C$CLP1
8491
8492                                    ;*************************************************************************
8493                                    ;
8494                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8495                                    ;
8496                                    ;*************************************************************************
8497
8498            051332  013701  055020          MOV     T25BFR+6,R1             ;PICK UP XST0
8499            051336  010102                  MOV     R1,R2                   ;SET UP EXPECTED
8500            051340  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8501            051344  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
8502            051346  001406                  BEQ     40$                     ;BR, IF EQUAL (OK)
8503            051350  005237  002212          INC     FATFLG                  ;BUMP COUNT
8507            051354                  ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                051354  104456                                                          TRAP    C$ERHRD
                051356  C01013                                                          .WORD   523
                051360  055315                                                          .WORD   T25BOT
                051362  015564                                                          .WORD   EXPREC
8508            051364                  40$:    CKLOOP                  ;LOOP IF SELECTED
                051364  104406                                                          TRAP    C$CLP1
8509            051366  012737  000001  055122          MOV     #000001,T25RB           ;NUMBER OF RECORDS TO SPACE OVER
8510
8511                                    ;*************************************************************************
8512                                    ;
8513                                    ;SPACE FORWARD,ACK,CVC=1 COMMAND
8514                                    ;
8515                                    ;*************************************************************************
8516
8517            051374  012737  140010  055120          MOV     #140010,T25PK3          ;SPACE FORWARD,ACK,CVC=1 COMMAND
8518            051402  012704  055120          MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8519            051406                  65$:
8520            051406  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8521            051412  004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8522            051416  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8523            051422  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED
8524            051426  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
8525            051430  001411                  BEQ     75$                     ;BR, IF OK
8526            051432  032701  000004          BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
8527            051436  001006                  BNE     75$                     ;BR, IF TSA IS SET (SUSPECT IS EOT)
8528            051440  005237  002212          INC     FATFLG                  ;BUMP COUNT
8532            051444                  ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
                051444  104456                                                          TRAP    C$ERHRD
                051446  001014                                                          .WORD   524
                051450  055235                                                          .WORD   T25WDE
                051452  015564                                                          .WORD   EXPREC
8533            051454                  75$:    CKLOOP                  ;LOOP IF SELECTED
                051454  104406                                                          TRAP    C$CLP1
8534            051456                  120$:
8535
8536                                    ;*************************************************************************
8537                                    ;
8538                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8539                                    ;
8540                                    ;*************************************************************************
```

TEST 5: SPACE RECORDS

```
8541
8542 051456  013701  055020                  MOV     T25BFR+6,R1             ;QUICK CHECK FOR BOT SET
8543 051462  010102                          MOV     R1,R2                   ;SET UP EXPECTED
8544 051464  042702  000002                  BIC     #BIT1,R2                ;CLEAR THE BOT BIT (XSTO)
8545 051470  020102                          CMP     R1,R2                   ;IS THE EOT BIT SET IN XSTO
8546 051472  001406                          BEQ     125$                    ;BR, IF SET (GOOD)
8547 051474  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8551 051500                                  ERRHRD  ERRNO,T25BNC,EXPREC     ;BOT NOT CLEARED AFTER SPACE FROM BOT
     051500  104456                                                                  TRAP    C$ERHRD
     051502  001015                                                                  .WORD   525
     051504  055610                                                                  .WORD   T25BNC
     051506  015564                                                                  .WORD   EXPREC
8552 051510                          125$:   CKLOOP                                  TRAP    C$CLP1
     051510  104406
8553 051512  004737  056472                  JSR     PC,T25RT3               ;CLEAN UP PACKET
8554 051516  012737  000401  055126          MOV     #257.,T25SZ             ;SET THE CORRECT SIZE UP
8555
8556                                 ;*****************************************************************
8557                                 ;
8558                                 ;READ DATA COMMAND IN PLACE
8559                                 ;
8560                                 ;*****************************************************************
8561
8562 051524  012737  140001  055120          MOV     #140001,T25PK3          ;READ DATA COMMAND IN PLACE
8563 051532  013737  003114  055122          MOV     FREE,T25RB              ;READ BUFFER ADDRESS TO PACKET
8564 051540  012704  055120                  MOV     #T25PK3,R4              ;R4 = POINTER TO PACKET
8565 051544  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8566 051550  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8567 051554  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8568 051560  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
8569 051564  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8570 051566  001406                          BEQ     190$                    ;BR, IF OK ESP. FUNCTION REJECT
8571 051570  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8575 051574                                  ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA CMD
     051574  104456                                                                  TRAP    C$ERHRD
     051576  001016                                                                  .WORD   526
     051600  005204                                                                  .WORD   RDERR
     051602  012136                                                                  .WORD   PKTSSR
8576 051604                          190$:   CKLOOP                          ;LOOP IF SELECTED
     051604  104406                                                                  TRAP    C$CLP1
8577 051606  017701  131302                  MOV     @FREE,R1                ;GET FIRST WORD FROM BUFFER
8578 051612  012702  000001                  MOV     #1,R2                   ;SET UP EXPECTED
8579 051616  020102                          CMP     R1,R2                   ;WAS RECORD NUMBERED 1
8580 051620  001406                          BEQ     200$                    ;BR, IF CORRECT RECORD
8581 051622  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8585 051626                                  ERRHRD  ERRNO,T25WNG,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
     051626  104456                                                                  TRAP    C$ERHRD
     051630  001017                                                                  .WORD   527
     051632  055525                                                                  .WORD   T25WNG
     051634  015564                                                                  .WORD   EXPREC
8586 051636                          200$:   CKLOOP                                  TRAP    C$CLP1
     051636  104406
8587 051640                                  ENDSUB                  ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     051640                                                                  L10074:
     051640  104403                                                                  TRAP    C$ESUB
8588 051642  023727  002212  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
8589 051650  103402                          BLO     999$                    ;BR, IF LESS THAN 25
```

```
051652  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
051656                          999$:

                                ;+
                                ;
                                ;TEST 5, SUBTEST 4
                                ;
                                ;VERIFIES THAT SPACE RECORDS REVERSE CAN SPACE BACK
                                ;OVER THE FIRST RECORD ON TAPE.
                                ;
                                ;
                                ;-

051656                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
051656                                                                                  T5.4:
051656  104402                                                                                  TRAP    C$BSUB
051660  004737  056336                  JSR     PC,T25REST              ;SET COMMAND PACKET
051664  004737  056430                  JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
051670  C04737  056472                  JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET

                                ;*******************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                ;
                                ;*******************************************************************

051674  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
051700  103407                          BCS     20$                     ;BR IF INIT WAS OK
051702  005237  002212                  INC     FATFLG                  ;BUMP COUNT
051706  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
051710                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
051710  104455                                                                                  TRAP    C$ERDF
051712  001020                                                                                  .WORD   528
051714  003650                                                                                  .WORD   SFIERR
051716  012124                                                                                  .WORD   SFIMSG
051720  013737  002172  055010  20$:    MOV     UNITN,T25DSW            ;SET UP DRIVE NUMBER

051726  012704  054770                  MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                ;*******************************************************************
                                ;
                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                ;
                                ;*******************************************************************

051732  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
051736  103407                          BCS     25$                     ;BR, IF COMMAND ISSUED OK
051740  005237  002212                  INC     FATFLG                  ;BUMP COUNT
051744  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
051746                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
051746  104456                                                                                  TRAP    C$ERHRD
051750  001021                                                                                  .WORD   529
051752  005054                                                                                  .WORD   WRTMSG
051754  012124                                                                                  .WORD   SFIMSG
051756                          25$:    CKLOOP                          ;LOOP IF SELECTED
051756  104406                                                                                  TRAP    C$CLP1
```

```
                                        ;*****************************************************************
                                        ;
                                        ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                        ;
                                        ;*****************************************************************

051760  004737  011104                          JSR     PC,REWIND                   ;CALL TAPE REWIND COMMAND
051764  103407                                  BCS     30$                         ;BR, IF NO PROBLEM
051766  010001                                  MOV     R0,R1                       ;SAVE TSSR
051770  005237  002212                          INC     FATFLG                      ;BUMP COUNT
051774                                          ERRHRD  ERRNO,T25RWN,PKTSSR         ;REWIND NOT ACCEPTED
051774  104456                                                                                      TRAP    C$ERHRD
051776  001022                                                                                      .WORD   530
052000  056125                                                                                      .WORD   T25RWN
052002  012136                                                                                      .WORD   PKTSSR
052004                                  30$:    CKLOOP                              ;LOOP IF SELECTED
052004  104406                                                                                      TRAP    C$CLP1

                                        ;*****************************************************************
                                        ;
                                        ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
                                        ;
                                        ;*****************************************************************

052006  013701  055020                          MOV     T25BFR+6,R1                 ;PICK UP XST0
052012  010102                                  MOV     R1,R2                       ;SET UP EXPECTED
052014  052702  000002                          BIS     #BIT1,R2                    ;SET BOT BIT IN EXPECTED
052020  020102                                  CMP     R1,R2                       ;DOES EXP = REC'D
052022  001406                                  BEQ     40$                         ;BR, IF EQUAL (OK)
052024  005237  002212                          INC     FATFLG                      ;BUMP COUNT
052030                                          ERRHRD  ERRNO,T25BOT,EXPREC         ;TAPE NOT AT BOT AFTER REWIND
052030  104456                                                                                      TRAP    C$ERHRD
052032  001023                                                                                      .WORD   531
052034  055315                                                                                      .WORD   T25BOT
052036  015564                                                                                      .WORD   EXPREC
052040                                  40$:    CKLOOP                              ;LOOP IF SELECTED
052040  104406                                                                                      TRAP    C$CLP1

                                        ;*****************************************************************
                                        ;
                                        ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
                                        ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
                                        ;
                                        ;*****************************************************************

052042  012703  000001                          MOV     #000001,R3                  ;NUMBER OF RECORDS TO SPACE FORWARD
052046  004737  010556                          JSR     PC,SPACE                    ;CALL SPACE COMMAND
052052  103410                                  BCS     50$                         ;CHECK FOR ERROR
052054  016501  000002                          MOV     TSSR(R5),R1                 ;GET TSSR CONTENTS
052060  005237  002212                          INC     FATFLG                      ;BUMP COUNT
052064                                          ERRHRD  ERRNO,T25WDE,SFFMSG         ;SPACE FORWARD FAILED
052064  104456                                                                                      TRAP    C$ERHRD
052066  001024                                                                                      .WORD   532
052070  055235                                                                                      .WORD   T25WDE
052072  012172                                                                                      .WORD   SFFMSG
052074                                  50$:    CKLOOP                              ;LOOP IF SELECTED
052074  104406                                                                                      TRAP    C$CLP1
```

TEST 5: SPACE RECORDS

```
8693 052076  012737  000001  055122          MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
8694
8695                                 ;*************************************************************************
8696                                 ;
8697                                 ;SPACE REVERSE,ACK,CVC=1 COMMAND
8698                                 ;
8699                                 ;*************************************************************************
8700
8701 052104  012737  140410  055120          MOV     #140410,T25PK3          ;SPACE REVERSE,ACK,CVC=1 COMMAND
8702 052112  012704  055120                  MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8703 052116                          65$:
8704 052116  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8705 052122  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8706 052126  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8707 052132  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
8708 052136  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8709 052140  001406                          BEQ     75$                     ;BR, IF OK
8710 052142  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8714 052146                                  ERRHRD  ERRNO,T25WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     052146  104456                                                                  TRAP    C$ERHRD
     052150  001025                                                                  .WORD   533
     052152  055235                                                                  .WORD   T25WDE
     052154  012136                                                                  .WORD   PKTSSR
8715 052156                          75$:    CKLOOP                          ;LOOP IF SELECTED
     052156  104406                                                                  TRAP    C$CLP1
8716 052160                          120$:
8717 052160  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
8718 052164  013737  003114  055122          MOV     FREE,T25RB              ;STARTING READ BUFFER ADDRESS
8719
8720                                 ;*************************************************************************
8721                                 ;
8722                                 ;READ DATA,ACK,CVC=1 COMMAND
8723                                 ;
8724                                 ;*************************************************************************
8725
8726 052172  012737  140001  055120          MOV     #140001,T25PK3          ;READ DATA,ACK,CVC=1 COMMAND
8727 052200  012704  055120          165$:   MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8728 052204  010337  055126                  MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
8729 052210  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8730 052214  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8731 052220  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8732 052224  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
8733 052230  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8734 052232  001406                          BEQ     170$                    ;BR, IF OK
8735 052234  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8739 052240                                  ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     052240  104456                                                                  TRAP    C$ERHRD
     052242  001026                                                                  .WORD   534
     052244  005204                                                                  .WORD   RDERR
     052246  012136                                                                  .WORD   PKTSSR
8740 052250                          170$:   CKLOOP                          ;LOOP IF SELECTED
     052250  104406                                                                  TRAP    C$CLP1
8741 052252  017701  130636                  MOV     @FREE,R1                        ;GET FIRST WORD FROM BUFFER
8742 052256  012702  000000                  MOV     #0,R2                   ;SET UP EXPECTED
8743 052262  020102                          CMP     R1,R2                   ;WAS RECORD NUMBERED 1
8744 052264  001406                          BEQ     200$                    ;BR, IF CORRECT RECORD
8745 052266  005237  002212                  INC     FATFLG                  ;BUMP COUNT
```

TEST 5: SPACE RECORDS

```
8749 052272                                ERRHRD  ERRNO,T25WNG,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
     052272  104456                                                              TRAP    C$ERHRD
     052274  001027                                                              .WORD   535
     052276  055525                                                              .WORD   T25WNG
     052300  015564                                                              .WORD   EXPREC
8750 052302                          200$:  CKLOOP
     052302  104406                                                              TRAP    C$CLP1
8751 052304                                 ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     052304                                                                    L10075:
     052304  104403                                                              TRAP    C$ESUB
8752 052306  023727  002212  000017         CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
8753 052314  103402                         BLO     999$                            ;BR, IF LESS THAN 25
8754 052316  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
8755 052322                          999$:
8756
8757                                 ;+
8758                                 ;
8759                                 ;TEST 5, SUBTEST 5
8760                                 ;
8761                                 ;VERIFIES THAT SPACE RECORDS FORWARD CAN SPACE A
8762                                 ;MULTIPLE NUMBER OF RECORDS (2 THROUGH 64K OR THE
8763                                 ;MAXIMUM NUMBER OF RECORDS WRITTEN ON THE TAPE,
8764                                 ;WHICH EVER IS LESS.
8765                                 ;
8766                                 ;
8767                                 ;
8768                                 ;-
8769
8770 052322                                 BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
     052322                                                                    T5.5:
     052322  104402                                                              TRAP    C$BSUB
8771 052324  004737  056336                JSR     PC,T25REST                      ;SET COMMAND PACKET
8772 052330  004737  056430                JSR     PC,T25RT2                       ;SET UP OTHER COMMAND PACKET
8773 052334  004737  056472                JSR     PC,T25RT3                       ;SET UP OTHER COMMAND PACKET
8774 052340  013737  055150  055146        MOV     T25CNT,T25CN2                   ;HOLD NUMBER OF RECORDS
8775 052346  162737  000002  055146        SUB     #2,T25CN2                       ;ACTUAL NUMBER OF RECORDS ON TAPE
8776 052354  013737  055150  055152        MOV     T25CNT,T25DLY                   ;SET UP REWIND DELAY COUNTER
8777
8778                                 ;*****************************************************************
8779                                 ;
8780                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
8781                                 ;
8782                                 ;*****************************************************************
8783
8784 052362  004737  016064          10$:   JSR     PC,SOFINIT                      ;DO INITIALIZE ON CONTROLLER
8785 052366  103427                         BCS     20$                             ;BR IF INIT WAS OK
8786 052370                                 DELAY   250                             ;WAIT ABOUT .25 SECONDS
     052370  012727  000250                                                           MOV     #250.,(PC)+
     052374  000000                                                                   .WORD   0
     052376  013727  002116                                                           MOV     L$DLY,(PC)+
     052402  000000                                                                   .WORD   0
     052404  005367  177772                                                           DEC     -6(PC)
     052410  001375                                                                   BNE     .-4
     052412  005367  177756                                                           DEC     -22(PC)
     052416  001367                                                                   BNE     .-20
8787 052420  005337  055152                DEC     T25DLY                          ;DEC COUNTER
8788 052424  001356                         BNE     10$                             ;BR, IF MORE LOOPS REQUIRED
```

```
052426  016501  000002                  MOV     TSSR(R5),R1                     ;CONTENTS OF TSSR REGISTER
052432  005237  002212                  INC     FATFLG                  ;BUMP COUNT
052436                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
052436  104455                                                                                  TRAP    C$ERDF
052440  001030                                                                                  .WORD   536
052442  003650                                                                                  .WORD   SFIERR
052444  012124                                                                                  .WORD   SFIMSG
052446                          20$:
052446  013737  002172  055010          MOV     UNITN,T25DSW            ;SET UP UNIT NUMBER
052454  012704  054770                  MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                ;*******************************************************************
                                ;
                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                ;
                                ;*******************************************************************

052460  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
052464  103407                          BCS     25$                     ;BR, IF COMMAND ISSUED OK
052466  005237  002212                  INC     FATFLG                  ;BUMP COUNT
052472  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
052474                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
052474  104456                                                                                  TRAP    C$ERHRD
052476  001031                                                                                  .WORD   537
052500  005054                                                                                  .WORD   WRTMSG
052502  012124                                                                                  .WORD   SFIMSG
052504                          25$:    CKLOOP                          ;LOOP IF SELECTED
052504  104406                                                                                  TRAP    C$CLP1

                                ;*******************************************************************
                                ;
                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                ;
                                ;*******************************************************************

052506  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
052512  103407                          BCS     30$                     ;BR, IF NO PROBLEM
052514  010001                          MOV     R0,R1                   ;SAVE TSSR
052516  005237  002212                  INC     FATFLG                  ;BUMP COUNT
052522                                  ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
052522  104456                                                                                  TRAP    C$ERHRD
052524  001032                                                                                  .WORD   538
052526  056125                                                                                  .WORD   T25RWN
052530  012136                                                                                  .WORD   PKTSSR
052532                          30$:    CKLOOP                          ;LOOP IF SELECTED
052532  104406                                                                                  TRAP    C$CLP1
052534  013701  055146                  MOV     T25CN2,R1               ;NUMBER OF RECORDS ON TAPE
052540  012702  177776                  MOV     #65534.,R2              ;MAX IT CAN SPACE OVER
052544  020201                          CMP     R2,R1                   ;WHICH VALUE CAN WE USE
052546  003002                          BGT     46$                     ;BR, IF # WRITTEN > 64K
052550  010103                          MOV     R1,R3                   ;# WRITTEN CAN BE USED
052552  000401                          BR      47$                     ;MOVE ON
052554  010203                  46$:    MOV     R2,R3                   ;USE MAX NUMBER
052556  162703  000001          47$:    SUB     #1,R3                   ;DON'T GO ALL THE WAY YET
052562  010337  055122                  MOV     R3,T25RB                ;NUMBER OF RECORDS TO SPACE OVER

                                ;*******************************************************************
```

TEST  5: SPACE RECORDS

```
8841                                    ;
8842                                    ;SPACE FORWARD,ACK,CVC=1 COMMAND
8843                                    ;
8844                                    ;*************************************************************************
8845
8846 052566  012737  140010  055120            MOV     #140010,T25PK3          ;SPACE FORWARD,ACK,CVC=1 COMMAND
8847 052574  012704  055120                    MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8848 052600                             65$:
8849 052600  013737  055146  055152            MOV     T25CN2,T25DLY           ;NUMBER OF RECORDS USED AS DELAY COUNTER
8850 052606  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8851 052612  004737  016340            67$:    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8852 052616  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8853 052622  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
8854 052626  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
8855 052630  001425                            BEQ     75$                     ;BR. IF OK
8856 052632                                    DELAY   250                     ;DELAY .25 SECONDS
     052632  012727  000250                                                            MOV     #250.,(PC)+
     052636  000000                                                                    .WORD   0
     052640  013727  002116                                                            MOV     L$DLY,(PC)+
     052644  000000                                                                    .WORD   0
     052646  005367  177772                                                            DEC     -6(PC)
     052652  001375                                                                    BNE     .-4
     052654  005367  177756                                                            DEC     -22(PC)
     052660  001367                                                                    BNE     .-20
8857 052662  005337  055152                    DEC     T25DLY                  ;BUMP DOWN COUNTER
8858 052666  001351                            BNE     67$                     ;BR. IF NOT AT END OF DELAY
8859 052670  005237  002212                    INC     FATFLG                  ;BUMP COUNT
8863 052674                                    ERRHRD  ERRNO,T25WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     052674  104456                                                                    TRAP    C$ERHRD
     052676  001033                                                                    .WORD   539
     052700  055235                                                                    .WORD   T25WDE
     052702  012136                                                                    .WORD   PKTSSR
8864 052704                             75$:    CKLOOP                          ;LOOP IF SELECTED
     052704  104406                                                                    TRAP    C$CLP1
8865 052706  012703  010000                    MOV     #4096.,R3               ;RECORD SIZE
8866 052712  013737  003114  055122            MOV     FREE,T25RB              ;STARTING READ BUFFER ADDRESS
8867
8868                                    ;*************************************************************************
8869                                    ;
8870                                    ;READ DATA,ACK COMMAND
8871                                    ;
8872                                    ;*************************************************************************
8873
8874 052720  012737  100001  055120            MOV     #100001,T25PK3          ;READ DATA,ACK COMMAND
8875 052726  012704  055120            165$:   MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8876 052732  010337  055126                    MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
8877 052736  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8878 052742  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8879 052746  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8880 052752  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
8881 052756  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
8882 052760  001411                            BEQ     170$                    ;BR. IF OK
8883 052762  032701  000004                    BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
8884 052766  001006                            BNE     170$                    ;IF SET ALL IS WELL
8885 052770  005237  002212                    INC     FATFLG                  ;BUMP COUNT
8889 052774                                    ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     052774  104456                                                                    TRAP    C$ERHRD
```

```
TEST  5: SPACE RECORDS

        052776  001034                                                          .WORD   540
        053000  005204                                                          .WORD   RDERR
        053002  012136                                                          .WORD   PKTSSR
   8890 053004                          170$:   CKLOOP                  ;LOOP IF SELECTED
        053004  104406                                                          TRAP    C$CLP1
   8891 053006  017701  130102                  MOV     @FREE,R1                ;GET FIRST WORD FROM BUFFER
   8892 053012  013702  055146                  MOV     T25CN2,R2               ;SET UP EXPECTED
   8893 053016  162702  000001                  SUB     #1,R2           ;SHOULD BE LAST RECORD
   8894 053022  020102                          CMP     R1,R2           ;WAS RECORD NUMBERED R3
   8895 053024  001406                          BEQ     200$            ;BR, IF CORRECT RECORD
   8896 053026  005237  002212                  INC     FATFLG          ;BUMP COUNT
   8900 053032                                  ERRHRD  ERRNO,T25WNG,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
        053032  104456                                                          TRAP    C$ERHRD
        053034  001035                                                          .WORD   541
        053036  055525                                                          .WORD   T25WNG
        053040  015564                                                          .WORD   EXPREC
   8901 053042                          200$:   CKLOOP
        053042  104406                                                          TRAP    C$CLP1
   8902 053044                                  ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        053044                                                                  L10076:
        053044  104403                                                          TRAP    C$ESUB
   8903 053046  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
   8904 053054  103402                          BLO     999$            ;BR, IF LESS THAN 25
   8905 053056  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
   8906 053062                          999$:
   8907
   8908                                 ;+
   8909                                 ;
   8910                                 ;TEST 5, SUBTEST 6
   8911                                 ;
   8912                                 ;VERIFIES THAT SPACE RECORDS REVERSE CAN SPACE A
   8913                                 ;MULTIPLE NUMBER OF RECORDS (2 THROUGH 64K OR THE
   8914                                 ;MAXIMUM NUMBER OF RECORDS WRITTEN ON THE TAPE
   8915                                 ;WHICH EVER IS LESS.
   8916                                 ;
   8917                                 ;
   8918                                 ;
   8919                                 ;-
   8920 053062                                  BGNSUB                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
        053062                                                                  T5.6:
        053062  104402                                                          TRAP    C$BSUB
   8921 053064  004737  056336                  JSR     PC,T25REST              ;SET COMMAND PACKET
   8922 053070  013737  055150  055146          MOV     T25CNT,T25CN2           ;SET UP RECORD COUNTER
   8923 053076  004737  056430                  JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
   8924 053102  004737  056472                  JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
   8925 053106  013737  055150  055152          MOV     T25CNT,T25DLY           ;SET UP REWIND DELAY COUNTER
   8926
   8927                                 ;*****************************************************************************
   8928                                 ;
   8929                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
   8930                                 ;
   8931                                 ;*****************************************************************************
   8932
   8933 053114  004737  016064          10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
   8934 053120  103427                          BCS     20$             ;BR IF INIT WAS OK
   8935 053122                                  DELAY   250             ;WAIT ABOUT .25 SECONDS
        053122  012727  000250                                                  MOV     #250.(PC)+
```

TEST 5: SPACE RECORDS

```
                053126  000000                                                          .WORD   0
                053130  013727  002116                                                  MOV     L$DLY,(PC)+
                053134  000000                                                          .WORD   0
                053136  005367  177772                                                  DEC     -6(PC)
                053142  001375                                                          BNE     .-4
                053144  005367  177756                                                  DEC     -22(PC)
                053150  001367                                                          BNE     .-20
  8936          053152  005337  055152          DEC     T25DLY                  ;DEC COUNTER
  8937          053156  001356                  BNE     10$                     ;BR, IF MORE LOOPS REQUIRED
  8938          053160  016501  000002          MOV     TSSR(R5),R1                     ;CONTENTS OF TSSR REGISTER
  8939          053164  005237  002212          INC     FATFLG                  ;BUMP COUNT
  8943          053170                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
                053170  104455                                                          TRAP    C$ERDF
                053172  001036                                                          .WORD   542
                053174  003650                                                          .WORD   SFIERR
                053176  012124                                                          .WORD   SFIMSG
  8944          053200  013737  002172  055010  20$:    MOV     UNITN,T25DSW            ;SET UP UNIT NUMBER
  8945
  8946          053206  C12704  054770          MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
  8947
  8948                                  ;*************************************************************************
  8949                                  ;
  8950                                  ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
  8951                                  ;
  8952                                  ;*************************************************************************
  8953
  8954          053212  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
  8955          053216  103407                  BCS     25$                     ;BR, IF COMMAND ISSUED OK
  8956          053220  005237  002212          INC     FATFLG                  ;BUMP COUNT
  8960          053224  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
  8961          053226                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                053226  104456                                                          TRAP    C$ERHRD
                053230  001037                                                          .WORD   543
                053232  005054                                                          .WORD   WRTMSG
                053234  012124                                                          .WORD   SFIMSG
  8962          053236                  25$:    CKLOOP                          ;LOOP IF SELECTED
                053236  104406                                                          TRAP    C$CLP1
  8963
  8964                                  ;*************************************************************************
  8965                                  ;
  8966                                  ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
  8967                                  ;
  8968                                  ;*************************************************************************
  8969
  8970          053240  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
  8971          053244  103407                  BCS     30$                     ;BR, IF NO PROBLEM
  8972          053246  010001                  MOV     R0,R1                   ;SAVE TSSR
  8973          053250  005237  002212          INC     FATFLG                  ;BUMP COUNT
  8977          053254                          ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
                053254  104456                                                          TRAP    C$ERHRD
                053256  001040                                                          .WORD   544
                053260  056125                                                          .WORD   T25RWN
                053262  012136                                                          .WORD   PKTSSR
  8978          053264                  30$:    CKLOOP                          ;LOOP IF SELECTED
                053264  104406                                                          TRAP    C$CLP1
  8979
  8980                                  ;*************************************************************************
```

TEST 5: SPACE RECORDS

```
8981                                    ;
8982                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
8983                                    ;
8984                                    ;*************************************************************************
8985
8986 053266  013701  055020                    MOV     T25BFR+6,R1             ;PICK UP XSTO
8987 053272  010102                            MOV     R1,R2                   ;SET UP EXPECTED
8988 053274  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8989 053300  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
8990 053302  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
8991 053304  005237  002212                    INC     FATFLG                  ;BUMP COUNT
8995 053310                                    ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     053310  104456                                                                    TRAP    C$ERHRD
     053312  001041                                                                    .WORD   545
     053314  055315                                                                    .WORD   T25BOT
     053316  015564                                                                    .WORD   EXPREC
8996 053320                            40$:    CKLOOP                          ;LOOP IF SELECTED
     053320  104406                                                                    TRAP    C$CLP1
8997 053322  C13701  055146                    MOV     T25CN2,R1               ;NUMBER OF RECORDS ON TAPE
8998 053326  012702  177776                    MOV     #65534.,R2              ;MAX IT CAN SPACE OVER
8999 053332  020201                            CMP     R2,R1                   ;WHICH VALUE CAN WE USE
9000 053334  003002                            BGT     46$                     ;BR, IF # WRITTEN > 64K
9001 053336  010103                            MOV     R1,R3                   ;# WRITTEN CAN BE USED
9002 053340  000401                            BR      47$                     ;MOVE ON
9003 053342  010203                    46$:    MOV     R2,R3                   ;USE MAX NUMBER
9004 053344                            47$:
9005 053344  010337  055122                    MOV     R3,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
9006
9007                                    ;*************************************************************************
9008                                    ;
9009                                    ;SPACE FORWARD,ACK,CVC=1 COMMAND
9010                                    ;
9011                                    ;*************************************************************************
9012
9013 053350  012737  140010  055120            MOV     #140010,T25PK3          ;SPACE FORWARD,ACK,CVC=1 COMMAND
9014 053356  012704  055120                    MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
9015 053362  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
9016 053366  013737  055146  055152            MOV     T25CN2,T25DLY           ;SET UP DELAY COUNTER
9017 053374  004737  016340            48$:    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
9018 053400  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9019 053404  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
9020 053410  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
9021 053412  001425                            BEQ     50$                     ;BR, IF OK
9022 053414                                    DELAY   250                     ;WAIT .25 SECONDS
     053414  012727  000250                                                            MOV     #250,(PC)+
     053420  000000                                                                    .WORD   0
     053422  013727  002116                                                            MOV     L$DLY,(PC)+
     053426  000000                                                                    .WORD   0
     053430  005367  177772                                                            DEC     -6(PC)
     053434  001375                                                                    BNE     .-4
     053436  005367  177756                                                            DEC     -22(PC)
     053442  001367                                                                    BNE     .-20
9023 053444  005337  055152                    DEC     T25DLY                  ;DEC THE DELAY COUNTER
9024 053450  001351                            BNE     48$                     ;BR, IF COUNTER HASN'T EXPIRED
9025 053452  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9029 053456                                    ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     053456  104456                                                                    TRAP    C$ERHRD
```

TEST 5: SPACE RECORDS

```
        053460  001042                                                          .WORD   546
        053462  055235                                                          .WORD   T25WDE
        053464  015564                                                          .WORD   EXPREC
   9030 053466                          50$:    CKLOOP                                  TRAP    C$CLP1
        053466  104406
   9031 053470  013701  055146                  MOV     T25CN2,R1       ;NUMBER OF RECORDS ON TAPE
   9032 053474  012702  177776                  MOV     #65534.,R2      ;MAX IT CAN SPACE OVER
   9033 053500  020201                          CMP     R2,R1           ;WHICH VALUE CAN WE USE
   9034 053502  003002                          BGT     55$             ;BR, IF # WRITTEN > 64K
   9035 053504  010103                          MOV     R1,R3           ;# WRITTEN CAN BE USED
   9036 053506  000401                          BR      60$             ;MOVE ON
   9037 053510  010203                  55$:    MOV     R2,R3           ;USE MAX NUMBER
   9038 053512  162703  000001          60$:    SUB     #1,R3           ;DON'T GO ALL THE WAY YET
   9039 053516  010337  055122                  MOV     R3,T25RB        ;NUMBER OF RECORDS TO SPACE OVER
   9040
   9041                                 ;*************************************************************************
   9042                                 ;
   9043                                 ;SPACE REVERSE,ACK,CVC=1 COMMAND
   9044                                 ;
   9045                                 ;*************************************************************************
   9046
   9047 053522  012737  140410  055120          MOV     #140410,T25PK3  ;SPACE REVERSE,ACK,CVC=1 COMMAND
   9048 053530  012704  055120                  MOV     #T25PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
   9049 053534  010465  000000                  MOV     R4,TSDB(R5)     ;ISSUE COMMAND
   9050 053540  013737  055146  055152          MOV     T25CN2,T25DLY   ;SET UP COUNTER
   9051 053546  004737  016340          70$:    JSR     PC,WAITF        ;WAIT FOR SSR TO SET
   9052 053552  016501  000002                  MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
   9053 053556  012702  000200                  MOV     #SSR,R2         ;SET UP EXPECTED
   9054 053562  020102                          CMP     R1,R2           ;ARE THEY EQUAL
   9055 053564  001425                          BEQ     75$             ;BR, IF OK
   9056 053566                                  DELAY   250             ;WAIT ABOUT .25 SECONDS
        053566  012727  000250                                                  MOV     #250.,(PC)+
        053572  000000                                                          .WORD   0
        053574  013727  002116                                                  MOV     L$DLY,(PC)+
        053600  000000                                                          .WORD   0
        053602  005367  177772                                                  DEC     -6(PC)
        053606  001375                                                          BNE     .-4
        053610  005367  177756                                                  DEC     -22(PC)
        053614  001367                                                          BNE     .-20
   9057 053616  005337  055152                  DEC     T25DLY          ;BUMP COUNTER DOWN
   9058 053622  001351                          BNE     70$             ;BR, IF COUNTER HASN'T EXPIRED
   9059 053624  005237  002212                  INC     FATFLG          ;BUMP COUNT
   9063 053630                                  ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
        053630  104456                                                          TRAP    C$ERHRD
        053632  001043                                                          .WORD   547
        053634  055235                                                          .WORD   T25WDE
        053636  015564                                                          .WORD   EXPREC
   9064 053640                          75$:    CKLOOP                  ;LOOP IF SELECTED
        053640  104406                                                          TRAP    C$CLP1
   9065 053642  012703  010000                  MOV     #4096.,R3       ;RECORD SIZE
   9066 053646  013737  003114  055122          MOV     FREE,T25RB      ;STARTING READ BUFFER ADDRESS
   9067
   9068                                 ;*************************************************************************
   9069                                 ;
   9070                                 ;READ DATA,ACK COMMAND
   9071                                 ;
   9072                                 ;*************************************************************************
```

TEST 5: SPACE RECORDS

```
 9073
 9074 053654  012737  100001  055120          MOV     #100001,T25PK3          ;READ DATA,ACK COMMAND
 9075 053662  012704  055120          165$:   MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 9076 053666  012700  177777                  MOV     #177777,R0              ;SET ALL ONES INTO CORRECT REGISTER
 9077 053672  004737  017512                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
 9078 053676  010337  055126                  MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
 9079 053702  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 9080 053706  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9081 053712  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9082 053716  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 9083 053722  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 9084 053724  001411                          BEQ     170$                    ;BR, IF OK
 9085 053726  032701  000004                  BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
 9086 053732  001006                          BNE     170$                    ;BR, IF BIT SET
 9087 053734  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 9091 053740                                  ERRHRD  ERRNO,RDERR,EXPREC      ;TSSR INCORRECT AFTER READ DATA
      053740  104456                                                                  TRAP    C$ERHRD
      053742  001044                                                                  .WORD   548
      053744  C05204                                                                  .WORD   RDERR
      053746  015564                                                                  .WORD   EXPREC
 9092 053750                          170$:   CKLOOP                          ;LOOP IF SELECTED
      053750  104406                                                                  TRAP    C$CLP1
 9093 053752  017701  127136                  MOV     @FREE,R1                        ;GET FIRST WORD FROM BUFFER
 9094 053756  012702  000001                  MOV     #1,R2                   ;SET UP EXPECTED
 9095 053762  020102                          CMP     R1,R2                   ;WAS RECORD NUMBERED R3
 9096 053764  001406                          BEQ     200$                    ;BR, IF CORRECT RECORD
 9097 053766  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 9101 053772                                  ERRHRD  ERRNO,T25WNH,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
      053772  104456                                                                  TRAP    C$ERHRD
      053774  001045                                                                  .WORD   549
      053776  055700                                                                  .WORD   T25WNH
      054000  015564                                                                  .WORD   EXPREC
 9102 054002                          200$:   CKLOOP
      054002  104406                                                                  TRAP    C$CLP1
 9103 054004                                  ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      054004                                                                      L10077:
      054004  104403                                                                  TRAP    C$ESUB
 9104 054006  023727  002212  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
 9105 054014  103402                                  BLO     999$                    ;BR, IF LESS THAN 25
 9106 054016  004737  017272                          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
 9107 054022                          999$:
 9108
 9109                                 ;*
 9110                                 ;
 9111                                 ;TEST 5, SUBTEST 7
 9112                                 ;
 9113                                 ;VERIFIES THAT SPACE RECORDS REVERSE ISSUED WHILE THE
 9114                                 ;TAPE IS AT BOT RESULTS IN FUNCTION REJECT TERMINATION
 9115                                 ;WITH THE NONEXECUTABLE FUNCTION (NEF) ERROR BIT SET.
 9116                                 ;
 9117                                 ;
 9118                                 ;
 9119                                 ;-
 9120 054022                                  BGNSUB                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      054022                                                                      T5.7:
      054022  104402                                                                  TRAP    C$BSUB
 9121 054024  004737  056336                  JSR     PC,T25REST              ;SET COMMAND PACKET
```

TEST 5: SPACE RECORDS

```
9122 054030  004737  056430                JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
9123 054034  004737  056472                JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
9124
9125                                ;*************************************************************************
9126                                ;
9127                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
9128                                ;
9129                                ;*************************************************************************
9130
9131 054040  004737  016064                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
9132 054044  103407                        BCS     20$                     ;BR IF INIT WAS OK
9133 054046  005237  002212                INC     FATFLG                  ;BUMP COUNT
9137 054052  010001                        MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
9138 054054                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     054054  104455                                                                TRAP    C$ERDF
     054056  001046                                                                .WORD   550
     054060  003650                                                                .WORD   SFIERR
     054062  012124                                                                .WORD   SFIMSG
9139 054064  C13737  002172  055010  20$:   MOV     UNITN,T25DSW            ;SET UP UNIT NUMBER
9140
9141 054072  012704  054770                MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
9142
9143                                ;*************************************************************************
9144                                ;
9145                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
9146                                ;
9147                                ;*************************************************************************
9148
9149 054076  004737  010752                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
9150 054102  103407                        BCS     25$                     ;BR, IF COMMAND ISSUED OK
9151 054104  005237  002212                INC     FATFLG                  ;BUMP COUNT
9155 054110  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
9156 054112                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     054112  104456                                                                TRAP    C$ERHRD
     054114  001047                                                                .WORD   551
     054116  005054                                                                .WORD   WRTMSG
     054120  012124                                                                .WORD   SFIMSG
9157 054122                        25$:    CKLOOP                          ;LOOP IF SELECTED
     054122  104406                                                                TRAP    C$CLP1
9158
9159                                ;*************************************************************************
9160                                ;
9161                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9162                                ;
9163                                ;*************************************************************************
9164
9165 054124  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
9166 054130  103407                        BCS     30$                     ;BR, IF NO PROBLEM
9167 054132  010001                        MOV     R0,R1                   ;SAVE TSSR
9168 054134  005237  002212                INC     FATFLG                  ;BUMP COUNT
9172 054140                                ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
     054140  104456                                                                TRAP    C$ERHRD
     054142  001050                                                                .WORD   552
     054144  056125                                                                .WORD   T25RWN
     054146  012136                                                                .WORD   PKTSSR
9173 054150                        30$:    CKLOOP                          ;LOOP IF SELECTED
     054150  104406                                                                TRAP    C$CLP1
```

```
                                        ;*****************************************************************
                                        ;
                                        ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
                                        ;
                                        ;*****************************************************************

054152  013701  055020                          MOV     T25BFR+6,R1             ;PICK UP XSTO
054156  010102                                  MOV     R1,R2                   ;SET UP EXPECTED
054160  052702  000002                          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
054164  020102                                  CMP     R1,R2                   ;DOES EXP = REC'D
054166  001406                                  BEQ     40$                     ;BR, IF EQUAL (OK)
054170  005237  002212                          INC     FATFLG                  ;BUMP COUNT
054174                                          ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
054174  104456                                                                                  TRAP    C$ERHRD
054176  001051                                                                                  .WORD   553
054200  055315                                                                                  .WORD   T25BOT
054202  015564                                                                                  .WORD   EXPREC
054204                                  40$:    CKLOOP                          ;LOOP IF SELECTED
054204  104406                                                                                  TRAP    C$CLP1
054206  012737  000001  055122                  MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE OVER

                                        ;*****************************************************************
                                        ;
                                        ;SPACE REVERSE,ACK COMMAND
                                        ;
                                        ;*****************************************************************

054214  012737  100410  055120                  MOV     #100410,T25PK3          ;SPACE REVERSE,ACK COMMAND
054222  012704  055120                          MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
054226                                  65$:
054226  010465  000000                          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
054232  004737  016340                          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
054236  016501  000002                          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
054242  012702  100206                          MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
054246  020102                                  CMP     R1,R2                   ;ARE THEY EQUAL
054250  001406                                  BEQ     75$                     ;BR, IF OK
054252  005237  002212                          INC     FATFLG                  ;BUMP COUNT
054256                                          ERRHRD  ERRNO,T25WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
054256  104456                                                                                  TRAP    C$ERHRD
054260  001052                                                                                  .WORD   554
054262  055235                                                                                  .WORD   T25WDE
054264  012136                                                                                  .WORD   PKTSSR
054266                                  75$:    CKLOOP                          ;LOOP IF SELECTED
054266  104406                                                                                  TRAP    C$CLP1

                                        ;*****************************************************************
                                        ;
                                        ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
                                        ;
                                        ;*****************************************************************

054270  013701  055020                          MOV     T25BFR+6,R1             ;GET XSTO STATUS WORD
054274  010102                                  MOV     R1,R2                   ;SET UP EXPECTED
054276  052702  002000                          BIS     #BIT10,R2               ;SET THE NEF BIT
054302  020102                                  CMP     R1,R2                   ;ARE THEY EQUAL
054304  001406                                  BEQ     170$                    ;BR, IF EQUAL (GOOD)
```

TEST 5: SPACE RECORDS

```
9227 054306  005237  002212                INC     FATFLG                  ;BUMP COUNT
9231 054312                                ERRHRD  ERRNO,T25NEF,EXPREC      ;NEF SHOULD BE SET
     054312  104456                                                              TRAP    C$ERHRD
     054314  001053                                                              .WORD   555
     054316  055763                                                              .WORD   T25NEF
     054320  015564                                                              .WORD   EXPREC
9232 054322                        170$:   CKLOOP                                TRAP    C$CLP1
     054322  104406
9233 054324                                ENDSUB                          L10100:
     054324                                                                    TRAP    C$ESUB
     054324  104403
9234 054326  023727  002212  000017        CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
9235 054334  103402                        BLO     999$                    ;BR, IF LESS THAN 25
9236 054336  004737  017272                JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
9237 054342                        999$:
9238
9239                               ;+
9240                               ;
9241                               ;TEST 5, SUBTEST 8
9242                               ;
9243                               ;VERIFIES THAT A SPACE RECORDS REVERSE COMMAND THAT
9244                               ;CUASES THE TAPE TO RUN INTO BOT (WITH THE TAPE NOT
9245                               ;INITIALLY AT BOT) CAUSES A TAPE STATUS ALERT
9246                               ;TERMINATION AND SETS THE REVERSE INTO BOT (RIB)
9247                               ;STATUS BIT
9248                               ;
9249                               ;
9250                               ;
9251                               ;-
9252 054342                                BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     054342                                                                    T5.8:
     054342  104402                                                              TRAP    C$BSUB
9253 054344  004737  056336                JSR     PC,T25REST              ;SET COMMAND PACKET
9254 054350  004737  056430                JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
9255 054354  004737  056472                JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
9256
9257                               ;*************************************************************************
9258                               ;
9259                               ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
9260                               ;
9261                               ;*************************************************************************
9262
9263 054360  004737  016064                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
9264 054364  103407                        BCS     20$                     ;BR IF INIT WAS OK
9265 054366  005237  002212                INC     FATFLG                  ;BUMP COUNT
9269 054372  010001                        MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
9270 054374                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     054374  104455                                                              TRAP    C$ERDF
     054376  001054                                                              .WORD   556
     054400  003650                                                              .WORD   SFIERR
     054402  012124                                                              .WORD   SFIMSG
9271 054404  013737  002172  055010  20$:    MOV     UNITN,T25DSW            ;SET UP UNIT NUMBER
9272
9273 054412  012704  054770                MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
9274
9275                               ;*************************************************************************
9276                               ;
```

TEST 5: SPACE RECORDS

```
                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                ;
                                ;*****************************************************************
054416  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
054422  103407                          BCS     25$                     ;BR, IF COMMAND ISSUED OK
054424  005237  002212                  INC     FATFLG                  ;BUMP COUNT
054430  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
054432                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
054432  104456                                                                  TRAP    C$ERHRD
054434  001055                                                                  .WORD   557
054436  005054                                                                  .WORD   WRTMSG
054440  012124                                                                  .WORD   SFIMSG
054442                          25$:    CKLOOP                          ;LOOP IF SELECTED
054442  104406                                                                  TRAP    C$CLP1
                                ;*****************************************************************
                                ;
                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                ;
                                ;*****************************************************************
054444  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
054450  103407                          BCS     30$                     ;BR, IF NO PROBLEM
054452  010001                          MOV     R0,R1                   ;SAVE TSSR
054454  005237  002212                  INC     FATFLG                  ;BUMP COUNT
054460                                  ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
054460  104456                                                                  TRAP    C$ERHRD
054462  001056                                                                  .WORD   558
054464  056125                                                                  .WORD   T25RWN
054466  012136                                                                  .WORD   PKTSSR
054470                          30$:    CKLOOP                          ;LOOP IF SELECTED
054470  104406                                                                  TRAP    C$CLP1
                                ;*****************************************************************
                                ;
                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
                                ;
                                ;*****************************************************************
054472  013701  055020                  MOV     T25BFR+6,R1             ;PICK UP XSTO
054476  010102                          MOV     R1,R2                   ;SET UP EXPECTED
054500  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
054504  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
054506  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
054510  005237  002212                  INC     FATFLG                  ;BUMP COUNT
054514                                  ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
054514  104456                                                                  TRAP    C$ERHRD
054516  001057                                                                  .WORD   559
054520  055315                                                                  .WORD   T25BOT
054522  015564                                                                  .WORD   EXPREC
054524                          40$:    CKLOOP
054524  104406                                                                  TRAP    C$CLP1
054526  012737  000001  055122          MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
                                ;*****************************************************************
                                ;
```

TEST 5: SPACE RECORDS

```
9328                                    ;SPACE FORWARD,IE,ACK,CVC=1 COMMAND
9329                                    ;
9330                                    ;*************************************************************************
9331
9332 054534  012737  140210  055120          MOV     #140210,T25PK3          ;SPACE FORWARD,IE,ACK,CVC=1 COMMAND
9333 054542  012704  055120                  MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
9334 054546  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
9335 054552  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
9336 054556  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9337 054562  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
9338 054566  020102                         CMP     R1,R2                   ;ARE THEY EQUAL
9339 054570  001406                         BEQ     75$                     ;BR, IF OK
9340 054572  005237  002212                  INC     FATFLG                  ;BUMP COUNT
9344 054576                                  ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     054576  104456                                                                  TRAP    C$ERHRD
     054600  001060                                                                  .WORD   560
     054602  055235                                                                  .WORD   T25WDE
     054604  015564                                                                  .WORD   EXPREC
9345 054606                             75$:    CKLOOP                          ;LOOP IF SELECTED
     054606  104406                                                                  TRAP    C$CLP1
9346 054610  012737  000020  055122          MOV     #20,T25RB               ;NUMBER OF RECORDS TO SPACE OVER
9347
9348                                    ;*************************************************************************
9349                                    ;
9350                                    ;SPACE REVERSE,IE,ACK COMMAND
9351                                    ;
9352                                    ;*************************************************************************
9353
9354 054616  012737  100610  055120          MOV     #100610,T25PK3          ;SPACE REVERSE,IE,ACK COMMAND
9355 054624  012704  055120                  MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
9356 054630  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
9357 054634  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
9358 054640  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9359 054644  012702  100204                  MOV     #SSR!BIT2!SC,R2         ;SET UP EXPECTED
9360 054650  020102                         CMP     R1,R2                   ;ARE THEY EQUAL
9361 054652  001406                         BEQ     175$                    ;BR, IF OK
9362 054654  005237  002212                  INC     FATFLG                  ;BUMP COUNT
9366 054660                                  ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     054660  104456                                                                  TRAP    C$ERHRD
     054662  001061                                                                  .WORD   561
     054664  055235                                                                  .WORD   T25WDE
     054666  015564                                                                  .WORD   EXPREC
9367 054670                             175$:   CKLOOP                          ;LOOP IF SELECTED
     054670  104406                                                                  TRAP    C$CLP1
9368 054672  013701  055026                  MOV     T25BFR+14,R1            ;GET XST3 STATUS WORD
9369 054676  010102                         MOV     R1,R2                   ;SET UP EXPECTED
9370 054700  052702  000001                  BIS     #BIT0,R2                ;SET THE RIB BIT
9371 054704  020102                         CMP     R1,R2                   ;ARE THEY EQUAL
9372 054706  001406                         BEQ     180$                    ;BR, IF EQUAL (GOOD)
9373 054710  005237  002212                  INC     FATFLG                  ;BUMP COUNT
9377 054714                                  ERRHRD  ERRNO,T25NEF,EXPREC     ;NEF SHOULD BE SET
     054714  104456                                                                  TRAP    C$ERHRD
     054716  001062                                                                  .WORD   562
     054720  055763                                                                  .WORD   T25NEF
     054722  015564                                                                  .WORD   EXPREC
9378 054724                             180$:   CKLOOP
     054724  104406                                                                  TRAP    C$CLP1
```

```
054726                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
054726                                                                                  L10101:
054726  104403                                                                                  TRAP    C$ESUB
054730  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
054736  103402                          BLO     999$                            ;BR, IF LESS THAN 25
054740  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
054744                          999$:
                                ;
                                ;
                                ;
054744  004737  016546                  JSR     PC,TSTLOOP                      ;DO WE NEED TO ITERATE TEST
054750  103002                          BCC     193$                            ;BR, IF NO LOOP REQUIRED
054752  000137  047626                  JMP     T25LOOP                         ;EXECUTE AGAIN
054756                          193$:
054756                                  EXIT    TST                             ;ALL DONE THIS TEST
054756  104432                                                                                  TRAP    C$EXIT
054760  001542                                                                                  .WORD   L10071-.

                                ;+
                                ;LOCAL STORAGE FOR THIS TEST
                                ;-
054762                                  .BLKB   10-<.-TSV2&7>
054770                          T25PACKET:                                      ;COMMAND PACKET FOR TEST
054770  100004                          .WORD   100004                          ;WRITE CHARACTERISTICS COMMAND, WITH  ACK
054772  055000                          .WORD   T25DATA                         ;ADDRESS OF CHARACTERISTICS BLOCK
054774  000000                          .WORD   0
054776  000010                          .WORD   8.                              ;STARTING VALUE OF BLOCK SIZE
055000                          T25DATA:                                        ;CHARACTERISTICS DATA BLOCK
055000  055012                          .WORD   T25BFR                          ;ADDRESS OF MESSAGE BUFFER
055002  000000                          .WORD   0
055004  000012                          .WORD   10.                             ;LENGTH OF MESSAGE BUFFER
055006  000000                          .WORD   0
055010  000000                  T25DSW: .WORD   0                               ;SELECT DRIVE ZERO
055012                          T25BFR: .BLKW   25.                             ;MESSAGE BUFFER
                                ;
                                ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
                                ;
055074                                  .BLKB   10-<.-TSV2&7>
055100                          T25PK2:
055100  100006                          .WORD   100006                          ;WRITE SUB SYS MEM COMMAND,  AND ACK
055102  055130                          .WORD   T25BF2                          ;ADDRESS OF SELECT BLOCK DATA
055104  000000                          .WORD   0
055106  000006                          .WORD   6.                              ;SIZE OF DATA PACKET

055110                                  .BLKB   10-<.-TSV2&7>
055120                          T25PK3:
055120  100005                          .WORD   100005                          ;READ COMMAND, AND ACK
055122                          T25RB:
055122  003114                  T25WB:  .WORD   FREE                            ;ADDRESS OF WRITE BUFFER
055124  000000                          .WORD   0
055126  000000                  T25SZ:  .WORD   0                               ;SIZE OF BUFFER (EXTENT)
                                        .EVEN
                                ;
                                ;
                                ;
055130                          T25BF2:
055130     010                  T25BS0: .BYTE   10                              ;BSELO AREA
```

```
TEST  5: SPACE RECORDS

 9438 055131     200                    T25BS1: .BYTE   200                     ;BSEL1 AREA
 9439 055132  000000                    T25S2:  .WORD   0                       ;SEL 2 AREA
 9440 055134  000000                    T25S3:  .WORD   0                       ;DATA AREA
 9441                                   ;
 9442                                   ;
 9443                                           .EVEN
 9444                                   ;TAPE MOTION PACKET COMMAND VALUES
 9445
 9446 055136  100005                    T25RN:  .WORD   100005                  ;READ DATA (NEXT)
 9447 055140  100405                    T25WDR: .WORD   100405                  ;READ DATA RETRY
 9448 055142  102005                    T25CON: .WORD   102005                  ;WRITE CONTINOUS
 9449 055144  177777                            .WORD   177777                  ;END OF DATA
 9450
 9451 055146  000000                    T25CN2: .WORD   0                       ;COUNTER FOR RECORDS
 9452 055150  000000                    T25CNT: .WORD   0                       ;COUNTER FOR RECORDS
 9453 055152  000000                    T25DLY: .WORD   0                       ;COUNTER FOR RECORDS
 9454
 9455                                   ;+
 9456                                   ;LOCAL TEXT MESSAGES FOR TEST
 9457                                   ;-
 9458
 9459 055154     127     122     111   T25SSR: .ASCIZ  'WRITE SUBSYSTEM Miscellaneous Read Status Failed'
 9460 055235     124     123     123   T25WDE: .ASCIZ  'TSSR Not Correct After POSITION (SPACE) Command'
 9461 055315     124     141     160   T25BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
 9462 055362     124     123     123   T25TM:  .ASCIZ  'TSSR Not Correct After POSITION (Space Command) Reject'
 9463 055451     127     162     151   T25NET: .ASCIZ  'Write Tape, Status Alert, But No EOT Sensed'
 9464 055525     123     160     141   T25WNG: .ASCIZ  'Space Forward Failed To Position On Correct Record'
 9465 055610     123     160     141   T25BNC: .ASCIZ  'Space Forward, From BOT, Failed To Clear BOT Indication'
 9466 055700     123     160     141   T25WNH: .ASCIZ  'Space Reverse Failed To Position On Correct Record'
 9467 055763     123     160     141   T25NEF: .ASCIZ  'Space Reverse, At BOT, Failed To Set NEF (XST0)'
 9468 056043     123     160     141   T25RIB: .ASCIZ  'Space Reverse, Into BOT, Failed To Set RIB (XST3)'
 9469 056125     122     145     167   T25RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
 9470 056174     104     162     151   T25OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
 9471 056247     124     123     123   T25WDC: .ASCIZ  'TSSR Not Correct After READ DATA Command'
 9472 056320     123     160     141   TST25ID:        .ASCIZ  'Space Records'
 9473                                           .EVEN
 9474                                   ;+
 9475                                   ;
 9476                                   ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
 9477                                   ;WRITE SUBSYSTEM MEMORY COMMAND
 9478                                   ;
 9479                                   ;-
 9480
 9481 056336                            T25REST:
 9482 056336                                    SAVREG                          ;SAVE THE REGISTERS
 9483 056342  012701  054770                     MOV     #T25PACKET,R1           ;START OF THE PACKET
 9484 056346  012721  100004                     MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK
 9485 056352  012721  055000                     MOV     #T25DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
 9486 056356  005021                             CLR     (R1)+                   ;EXTENDED ADDRESS
 9487 056360  012721  000012                     MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
 9488 056364  012721  055012                     MOV     #T25BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
 9489 056370  005021                             CLR     (R1)+
 9490 056372  012721  000024                     MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
 9491 056376  005021                             CLR     (R1)+
 9492 056400  012711  000000                     MOV     #0,(R1)                 ;SELECT DRIVE ZERO
 9493 056404  012702  000030                     MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
 9494 056410  012762  177777  055012  64$:      MOV     #177777,T25BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
```

TEST  5: SPACE RECORDS

```
9495 056416  005742                        TST     -(R2)                   ;NEXT LOCATION
9496 056420  022702  000000                CMP     #0,R2                   ;IS R2 AT ZERO YET
9497 056424  001371                        BNE     64$                     ;KEEP GOING UNTIL DONE
9498 056426  000207                        RTS     PC                      ;RETURN
9499
9500 056430                        T25RT2:
9501 056430                                SAVREG                          ;SAVE THE REGISTERS
9502 056434  012701  055100                MOV     #T25PK2,R1              ;START OF THE PACKET
9503 056440  012721  100006                MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
9504 056444  012721  055130                MOV     #T25BF2,(R1)+           ;ADDRESS OF DATA BLOCK
9505 056450  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
9506 056452  012721  000006                MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
9507 056456  005021                        CLR     (R1)+
9508 056460  012701  055130                MOV     #T25BF2,R1              ;POINT TO DATA SEL AREA
9509 056464  005021                        CLR     (R1)+
9510 056466  005011                        CLR     (R1)
9511 056470  000207                        RTS     PC                      ;RETURN
9512 056472                        T25RT3:
9513 056472                                SAVREG                          ;SAVE THE REGISTERS
9514 056476  012701  055120                MOV     #T25PK3,R1              ;START OF THE PACKET
9515 056502  012721  000000                MOV     #0,(R1)+                ;WRITE SUBSYSTEM MEM. WITH ACK,
9516 056506  012721  000000                MOV     #0,(R1)+                ;ADDRESS OF DATA BLOCK
9517 056512  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
9518 056514  012721  000000                MOV     #0,(R1)+                ;SIZE OF DATA BLOCK IN BYTES
9519 056520  000207                        RTS     PC                      ;RETURN
9520 056522                                ENDTST
     056522                                                                L10071:
     056522  104401                                                              TRAP    C$ETST
9521
9522                                       .SBTTL  TEST  6: REREADS
9523                               ;+
9524                               ;
9525                               ;THIS TEST VERIFIES THAT THE REREAD PREVIOUS AND REREAD NEXT
9526                               ;COMMANDS OPERATE PROPERLY. VARIOUS COMBINATIONS OF ODD AND EVEN
9527                               ;DATA BUFFER BOUNDRIES, RECORD SIZES (UP TO 64K BYTES IF MEMORY
9528                               ;SPACE IS AVAILIABLE), AND BYTE-SWAP (SWP) AND OPPOSITE (OPP)
9529                               ;CONRTOL ARE USED. ALSO TESTED ARE PROPER TERMINATIONS ON
9530                               ;EXCEPTIONAL OR ERROR CONDITIONS: RECORD LENGTH LONG, RECORD
9531                               ;LENGTH SHORT, READ REVERSE AT BOT, ILLEGAL DATA BUFFER ADDRESSES,
9532                               ;AND DATA BUFFERS IN NONEXISTENT MEMORY.
9533                               ;
9534                               ;
9535                               ;THE TEST CONSISTS OF THE FOLLOWING 15 SUBTESTS
9536                               ;
9537                               ;
9538                               ;
9539                               ;-
9540 056524                                BGNTST
     056524                                                                T6::
9541 056524  012737  006446  002170        MOV     #EPRT2,EPRTSW           ;SECONDARY ERROR MESSAGE
9542 056532  004737  017364                JSR     PC,KTOFF                ;DON'T NEED KT11
9547 056536  012700  075707                MOV     #TST26ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
9548 056542  004737  016600                JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
9549 056546  012737  000005  002206        MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
9550 056554  004737  022206                JSR     PC,MEMCK                ;CHECK FOR MEMORY
9551 056560  005037  003126                CLR     NXMFLG                  ;SET FLAG
9552 056564  005037  073156                CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
```

TEST 6: REREADS

```
                                        ;+
                                        ;
                                        ;TEST 6, SUBTEST 1
                                        ;
                                        ;
                                        ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=0
                                        ;AND SWB=0 OPERATES PROPERLY. THE TAPE IS FIRST
                                        ;REWOUND AND THEN WRITTEN WITH A SERIES OF TEST
                                        ;RECORDS VARYING IN LENGTH AND DATA CONTENT. THE TAPE
                                        ;IS THEN REWOUND AGAIN. FOR EACH TEST RECORD, THE
                                        ;TAPE IS SPACED FORWARD ONE RECORD AND A REREAD
                                        ;PREVIOUS COMMAND ISSUED. RESULTS (STATUS, DATA,
                                        ;ETC.) ARE VERIFIED. THE BYTE COUNT ON EACH REREAD
                                        ;PREVIOUS COMMAND IS SET TO THE LENGTH OF THE EXPECTED
                                        ;RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD OCCUR.
                                        ;
                                        ;
                                        ;-

056570                                  T26LOOP:

                                                BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
                                                                                                T6.1:
056570  104402                                                                                    TRAP    C$BSUB
056572  004737  075720                        JSR     PC,T26REST              ;SET COMMAND PACKET
056576  004737  076012                        JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
056602  004737  076054                        JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
056606  012737  176750  073164                MOV     #65000.,T26DLY                  ;SET UP DELAY COUNTER

                                        ;*************************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*************************************************************************

056614  004737  016064                10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
056620  103426                                BCS     20$                     ;BR IF INIT WAS OK
056622                                        DELAY   250                     ;DELAY FOR A REWIND TO FINISH
056622  012727  000250                                                                    MOV     #250.,(PC)+
056626  000000                                                                            .WORD   0
056630  013727  002116                                                                    MOV     L$DLY,(PC)+
056634  000000                                                                            .WORD   0
056636  005367  177772                                                                    DEC     -6(PC)
056642  001375                                                                            BNE     .-4
056644  005367  177756                                                                    DEC     -22(PC)
056650  001367                                                                            BNE     .-20
056652  005337  073164                        DEC     T26DLY                  ;DEC COUNTER
056656  001356                                BNE     10$                     ;BR, IF DELAY NOT READY
056660  005237  002212                        INC     FATFLG                  ;BUMP COUNT
056664  010001                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
056666                                        ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
056666  104455                                                                            TRAP    C$ERDF
056670  001131                                                                            .WORD   601
056672  003650                                                                            .WORD   SFIERR
056674  012124                                                                            .WORD   SFIMSG
056676                                  20$:
056676  013737  002172  073020                MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
```

```
056704  012704  073000                  MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                ;*******************************************************************
                                ;
                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                ;
                                ;*******************************************************************

056710  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
056714  103407                          BCS     26$                     ;BR, IF COMMAND ISSUED OK
056716  005237  002212                  INC     FATFLG                  ;BUMP COUNT
056722  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
056724                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
056724  104456                                                                                  TRAP    C$ERHRD
056726  001132                                                                                  .WORD   602
056730  005054                                                                                  .WORD   WRTMSG
056732  012124                                                                                  .WORD   SFIMSG
056734                          26$:    CKLOOP                          ;LOOP IF SELECTED
056734  104406                                                                                  TRAP    C$CLP1

                                ;*******************************************************************
                                ;
                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                ;
                                ;*******************************************************************

056736  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
056742  103413                          BCS     30$                     ;BR, IF NO PROBLEM
056744  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
056750  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
056754  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
056756  005237  002212                  INC     FATFLG                  ;BUMP COUNT
056762                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
056762  104456                                                                                  TRAP    C$ERHRD
056764  001133                                                                                  .WORD   603
056766  074464                                                                                  .WORD   T26RWN
056770  012136                                                                                  .WORD   PKTSSR
056772                          30$:    CKLOOP                          ;LOOP IF SELECTED
056772  104406                                                                                  TRAP    C$CLP1

                                ;*******************************************************************
                                ;
                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
                                ;
                                ;*******************************************************************

056774  013701  073030                  MOV     T26BFR+6,R1             ;PICK UP XSTO
057000  010102                          MOV     R1,R2                   ;SET UP EXPECTED
057002  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
057006  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
057010  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
057012  005237  002212                  INC     FATFLG                  ;BUMP COUNT
057016                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
057016  104456                                                                                  TRAP    C$ERHRD
057020  001134                                                                                  .WORD   604
057022  074175                                                                                  .WORD   T26BOT
057024  015564                                                                                  .WORD   EXPREC
```

```
057026                          40$:    CKLOOP                          ;LOOP IF SELECTED
057026  104406                                                                          TRAP    C$CLP1
057030  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
057034  013737  003114  073132          MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS

                                ;*******************************************************************
                                ;
                                ;WRITE DATA,ACK,CVC=1 COMMAND
                                ;
                                ;*******************************************************************

057042  012737  140005  073130          MOV     #140005,T26PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
057050  012704  073130                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
057054                          65$:
057054  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
057056  004737  017512                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
057062  010337  073136                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
057066  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
057072  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
057076  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
057102  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
057106  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
057110  001406                          BEQ     75$                     ;BR, IF OK
057112  005237  002212                  INC     FATFLG                  ;BUMP COUNT
057116                                  ERRHRD  ERRNO,WRTERR,EXPREC     ;TSSR INCORRECT AFTER WRITE DATA
057116  104456                                                                          TRAP    C$ERHRD
057120  001135                                                                          .WORD   605
057122  005111                                                                          .WORD   WRTERR
057124  015564                                                                          .WORD   EXPREC
057126                          75$:    CKLOOP                          ;LOOP IF SELECTED
057126  104406                                                                          TRAP    C$CLP1
057130  005723                          TST     (R3)+                   ;BUMP RECORD SIZE
057132  022703  000414                  CMP     #268.,R3                ;END OF RECORD YET
057136  001346                          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
057140                          80$:    CKLOOP                          ;LOOP IF SELECTED
057140  104406                                                                          TRAP    C$CLP1
057142                          120$:

                                ;*******************************************************************
                                ;
                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                ;
                                ;*******************************************************************

057142  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
057146  103413                          BCS     130$                    ;BR, IF NO PROBLEM
057150  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
057154  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
057160  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
057162  005237  002212                  INC     FATFLG                  ;BUMP COUNT
057166                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
057166  104456                                                                          TRAP    C$ERHRD
057170  001136                                                                          .WORD   606
057172  074464                                                                          .WORD   T26RWN
057174  012136                                                                          .WORD   PKTSSR
057176                          130$:   CKLOOP                          ;LOOP IF SELECTED
057176  104406                                                                          TRAP    C$CLP1
```

TEST 6: REREADS

```
9702
9703                                    ;*************************************************************************
9704                                    ;
9705                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
9706                                    ;
9707                                    ;*************************************************************************
9708
9709 057200  013701  073030                    MOV     T26BFR+6,R1             ;PICK UP XSTO
9710 057204  010102                            MOV     R1,R2                   ;SET UP EXPECTED
9711 057206  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
9712 057212  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
9713 057214  001406                            BEQ     140$                    ;BR, IF EQUAL (OK)
9714 057216  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9718 057222                                    ERRHRD  ERRNO,T26BOT,PKTSSR     ;TAPE NOT AT BOT AFTER REWIND
     057222  104456                                                            TRAP    C$ERHRD
     057224  001137                                                            .WORD   607
     057226  074175                                                            .WORD   T26BOT
     057230  012136                                                            .WORD   PKTSSR
9719 057232                            140$:   CKLOOP                          ;LOOP IF SELECTED
     057232  104406                                                            TRAP    C$CLP1
9720 057234  012737  000400  073162            MOV     #256.,T26RSZ            ;SET RECORD SIZE
9721
9722                                    ;*************************************************************************
9723                                    ;
9724                                    ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
9725                                    ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
9726                                    ;
9727                                    ;*************************************************************************
9728
9729 057242  012703  000001            145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
9730 057246  004737  010556                    JSR     PC,SPACE                ;CALL SPACE ROUTINE
9731 057252  103412                            BCS     150$                    ;BR, IF NO PROBLEM WITH SPACE COMMAND
9732 057254  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR
9733 057260  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
9734 057264  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9738 057270                                    ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
     057270  104456                                                            TRAP    C$ERHRD
     057272  001140                                                            .WORD   608
     057274  073577                                                            .WORD   T26SC
     057276  015564                                                            .WORD   EXPREC
9739 057300                            150$:   CKLOOP
     057300  104406                                                            TRAP    C$CLP1
9740 057302  013703  073162                    MOV     T26RSZ,R3               ;RECORD SIZE
9741 057306  013737  003114  073132            MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
9742
9743                                    ;*************************************************************************
9744                                    ;
9745                                    ;REREREAD DATA,CVC=1,ACK COMMAND
9746                                    ;
9747                                    ;*************************************************************************
9748
9749 057314  012737  141001  073130            MOV     #141001,T26PK3          ;REREREAD DATA,CVC=1,ACK COMMAND
9750 057322  012704  073130            165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
9751 057326  010337  073136                    MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
9752 057332  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
9753 057336  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
9754 057342  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
```

TEST 6: REREADS

```
9755 057346  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED
9756 057352  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
9757 057354  001406                    BEQ     170$                    ;BR, IF OK
9758 057356  005237  002212            INC     FATFLG                  ;BUMP COUNT
9762 057362                            ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     057362  104456                                                            TRAP    C$ERHRD
     057364  001141                                                            .WORD   609
     057366  075020                                                            .WORD   T26WDC
     057370  012136                                                            .WORD   PKTSSR
9763 057372                    170$:   CKLOOP                          ;LOOP IF SELECTED
     057372  104406                                                            TRAP    C$CLP1
9764 057374  013702  003114            MOV     FREE,R2                 ;CURRENT BUFFER ADDRESS TO R2
9765 057400  010304                    MOV     R3,R4                   ;CURRENT RECORD SIZE
9766 057402  162704  000400            SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
9767 057406  060204            173$:   ADD     R2,R4                   ;SET UP POINTER
9768 057410  021403                    CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
9769 057412  001410                    BEQ     180$                    ;BR, IF ALL IS WELL
9770 057414  011401                    MOV     (R4),R1                 ;RECD DATA
9771 057416  010302                    MOV     R3,R2                   ;EXPECTED DATA
9772 057420  005237  002212            INC     FATFLG                  ;BUMP COUNT
9776 057424                            ERRHRD  ERRNO,T26DTA,EXPREC     ;DATA READ NOT = WRITTEN
     057424  104456                                                            TRAP    C$ERHRD
     057426  001142                                                            .WORD   610
     057430  074242                                                            .WORD   T26DTA
     057432  015564                                                            .WORD   EXPREC
9777 057434                    180$:   CKLOOP                          ;LOOP IF SELECTED
     057434  104406                                                            TRAP    C$CLP1
9778 057436  005724                    TST     (R4)+                   ;BUMP TO NEXT LOCATION
9779 057440  160204                    SUB     R2,R4                   ;CORRECT RECORDS SIZE VALUE
9780 057442  020403                    CMP     R4,R3                   ;END OF RECORD YET
9781 057444  001360                    BNE     173$                    ;BR, IF NOT AT END OF RECORD
9782 057446  005723                    TST     (R3)+                   ;BUMP RECORD SIZE
9783 057450  010337  073162            MOV     R3,T26RSZ               ;RESET RECORD SIZE
9784 057454  022703  000412            CMP     #266.,R3                ;END OF RECORD YET
9785 057460  001270                    BNE     145$                    ;BR, IF MORE RECORDS TO READ
9786 057462                    190$:   CKLOOP                          ;LOOP IF SELECTED
     057462  104406                                                            TRAP    C$CLP1
9787 057464                            ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     057464                                                                 L10103:
     057464  104403                                                            TRAP    C$ESUB
9788 057466  023727  002212  000017            CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
9789 057474  103402                            BLO     999$                    ;BR, IF LESS THAN 25
9790 057476  004737  017272                    JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
9791 057502                    999$:
9792
9793                           ;+
9794                           ;
9795                           ;TEST 6, SUBTEST 2
9796                           ;
9797                           ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=0
9798                           ;AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
9799                           ;THE SAME AS THAT USED IN SUBTEST 1, BUT IT IS
9800                           ;VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
9801                           ;SWAPPED BYTES.
9802                           ;
9803                           ;
9804                           ;
```

```
                                        ;-
057502                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
057502                                                                                  T6.2:
057502  104402                                                                                  TRAP    C$BSUB
057504  004737  075720                          JSR     PC,T26REST              ;SET COMMAND PACKET
057510  004737  076012                          JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
057514  004737  076054                          JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

                                        ;*******************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*******************************************************************

057520  004737  016064                          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
057524  103407                                  BCS     20$                     ;BR IF INIT WAS OK
057526  005237  002212                          INC     FATFLG                  ;BUMP COUNT
057532  010001                                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
057534                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
057534  104455                                                                                  TRAP    C$ERDF
057536  001143                                                                                  .WORD   611
057540  003650                                                                                  .WORD   SFIERR
057542  012124                                                                                  .WORD   SFIMSG
057544  013737  002172  073020  20$:            MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER

057552  012704  073000                          MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*******************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*******************************************************************

057556  004737  010752                          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
057562  103407                                  BCS     26$                     ;BR, IF COMMAND ISSUED OK
057564  005237  002212                          INC     FATFLG                  ;BUMP COUNT
057570  010001                                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
057572                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
057572  104456                                                                                  TRAP    C$ERHRD
057574  001144                                                                                  .WORD   612
057576  005054                                                                                  .WORD   WRTMSG
057600  012124                                                                                  .WORD   SFIMSG
057602                                  26$:    CKLOOP                          ;LOOP IF SELECTED
057602  104406                                                                                  TRAP    C$CLP1

                                        ;*******************************************************************
                                        ;
                                        ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                        ;
                                        ;*******************************************************************

057604  004737  011104                          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
057610  103413                                  BCS     30$                     ;BR, IF NO PROBLEM
057612  016501  000002                          MOV     TSSR(R5),R1             ;GET TSSR
057616  012702  000200                          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
057622  010004                                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
057624  005237  002212                          INC     FATFLG                  ;BUMP COUNT
```

TEST 6: REREADS

```
9860 057630                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     057630  104456                                                          TRAP    C$ERHRD
     057632  001145                                                          .WORD   613
     057634  074464                                                          .WORD   T26RWN
     057636  012136                                                          .WORD   PKTSSR
9861 057640                     30$:    CKLOOP                          ;LOOP IF SELECTED
     057640  104406                                                          TRAP    C$CLP1
9862
9863                            ;*************************************************************************
9864                            ;
9865                            ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
9866                            ;
9867                            ;*************************************************************************
9868
9869 057642  013701  073030             MOV     T26BFR+6,R1             ;PICK UP XST0
9870 057646  010102                     MOV     R1,R2                   ;SET UP EXPECTED
9871 057650  052702  000002             BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
9872 057654  020102                     CMP     R1,R2                   ;DOES EXP = REC'D
9873 057656  C01406                     BEQ     40$                     ;BR, IF EQUAL (OK)
9874 057660  005237  002212             INC     FATFLG                  ;BUMP COUNT
9878 057664                             ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     057664  104456                                                          TRAP    C$ERHRD
     057666  001146                                                          .WORD   614
     057670  074175                                                          .WORD   T26BOT
     057672  015564                                                          .WORD   EXPREC
9879 057674                     40$:    CKLOOP                          ;LOOP IF SELECTED
     057674  104406                                                          TRAP    C$CLP1
9880 057676  012703  000400             MOV     #256.,R3                ;RECORD SIZE
9881 057702  013737  003114  073132     MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
9882
9883                            ;*************************************************************************
9884                            ;
9885                            ;WRITE DATA,ACK,SWB COMMAND
9886                            ;
9887                            ;*************************************************************************
9888
9889 057710  012737  110005  073130         MOV     #110005,T26PK3          ;WRITE DATA,ACK,SWB COMMAND
9890 057716  012704  073130             MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
9891 057722                     65$:
9892 057722  010300                     MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
9893 057724  004737  017512             JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
9894 057730  010337  073136             MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
9895 057734  010465  000000             MOV     R4,TSDB(R5)             ;ISSUE COMMAND
9896 057740  004737  016340             JSR     PC,WAITF                ;WAIT FOR SSR TO SET
9897 057744  016501  000002             MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9898 057750  012702  000200             MOV     #SSR,R2                 ;SET UP EXPECTED
9899 057754  020102                     CMP     R1,R2                   ;ARE THEY EQUAL
9900 057756  001406                     BEQ     75$                     ;BR, IF OK
9901 057760  005237  002212             INC     FATFLG                  ;BUMP COUNT
9905 057764                             ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     057764  104456                                                          TRAP    C$ERHRD
     057766  001147                                                          .WORD   615
     057770  005111                                                          .WORD   WRTERR
     057772  012136                                                          .WORD   PKTSSR
9906 057774                     75$:    CKLOOP                          ;LOOP IF SELECTED
     057774  104406                                                          TRAP    C$CLP1
9907 057776  005723                     TST     (R3)+                   ;BUMP RECORD SIZE
```

TEST 6: REREADS

```
9908 060000  022703  000414                CMP     #268.,R3                ;END OF RECORD YET
9909 060004  001346                        BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
9910 060006                        80$:    CKLOOP                          ;LOOP IF SELECTED
     060006  104406                                                                TRAP    C$CLP1
9911 060010                        120$:
9912
9913                               ;*************************************************************************
9914                               ;
9915                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9916                               ;
9917                               ;*************************************************************************
9918
9919 060010  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
9920 060014  103413                        BCS     130$                    ;BR, IF NO PROBLEM
9921 060016  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
9922 060022  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
9923 060026  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
9924 060030  005237  002212                INC     FATFLG                  ;BUMP COUNT
9928 060034                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     060034  104456                                                                TRAP    C$ERHRD
     060036  001150                                                                .WORD   616
     060040  074464                                                                .WORD   T26RWN
     060042  012136                                                                .WORD   PKTSSR
9929 060044                        130$:   CKLOOP                          ;LOOP IF SELECTED
     060044  104406                                                                TRAP    C$CLP1
9930
9931                               ;*************************************************************************
9932                               ;
9933                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
9934                               ;
9935                               ;*************************************************************************
9936
9937 060046  013701  073030                MOV     T26BFR+6,R1             ;PICK UP XST0
9938 060052  010102                        MOV     R1,R2                   ;SET UP EXPECTED
9939 060054  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
9940 060060  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
9941 060062  001406                        BEQ     140$                    ;BR, IF EQUAL (OK)
9942 060064  005237  002212                INC     FATFLG                  ;BUMP COUNT
9946 060070                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     060070  104456                                                                TRAP    C$ERHRD
     060072  001151                                                                .WORD   617
     060074  074175                                                                .WORD   T26BOT
     060076  015564                                                                .WORD   EXPREC
9947 060100                        140$:   CKLOOP                          ;LOOP IF SELECTED
     060100  104406                                                                TRAP    C$CLP1
9948 060102  012737  000400  073162          MOV     #256.,T26RSZ            ;SET UP RECORD SIZE
9949
9950                               ;*************************************************************************
9951                               ;
9952                               ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
9953                               ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
9954                               ;
9955                               ;*************************************************************************
9956
9957 060110  012703  000001        145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
9958 060114  004737  010556                JSR     PC,SPACE                ;CALL SPACE ROUTINE
9959 060120  103412                        BCS     150$                    ;BR, IF NO PROBLEM WITH SPACE COMMAND
```

TEST 6: REREADS

```
 9960 060122  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
 9961 060126  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
 9962 060132  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 9966 060136                                  ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
      060136  104456                                                                  TRAP    C$ERHRD
      060140  001152                                                                  .WORD   618
      060142  073577                                                                  .WORD   T26SC
      060144  015564                                                                  .WORD   EXPREC
 9967 060146                          150$:   CKLOOP                                  TRAP    C$CLP1
      060146  104406
 9968 060150  013703  073162                  MOV     T26RSZ,R3               ;RECORD SIZE
 9969 060154  013737  003114  073132          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
 9970
 9971                                 ;*************************************************************************
 9972                                 ;
 9973                                 ;REREAD DATA,CVC=1,ACK,SWB COMMAND
 9974                                 ;
 9975                                 ;*************************************************************************
 9976
 9977 060162  012737  151001  073130          MOV     #151001,T26PK3          ;REREAD DATA,CVC=1,ACK,SWB COMMAND
 9978 060170  012704  073130          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 9979 060174  010337  073136                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
 9980 060200  010465  000000                  MOV     R4,TSD8(R5)             ;ISSUE COMMAND
 9981 060204  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9982 060210  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9983 060214  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 9984 060220  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 9985 060222  001406                          BEQ     170$                    ;BR, IF OK
 9986 060224  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 9990 060230                                  ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
      060230  104456                                                                  TRAP    C$ERHRD
      060232  001153                                                                  .WORD   619
      060234  075020                                                                  .WORD   T26WDC
      060236  012136                                                                  .WORD   PKTSSR
 9991 060240                          170$:   CKLOOP                          ;LOOP IF SELECTED
      060240  104406                                                                  TRAP    C$CLP1
 9992 060242  013702  003114                  MOV     FREE,R2                 ;CURRENT BUFFER ADDRESS TO R2
 9993 060246  010304                          MOV     R3,R4                   ;CURRENT RECORD SIZE
 9994 060250  162704  000400                  SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
 9995 060254  060204                  173$:   ADD     R2,R4                   ;SET UP POINTER
 9996 060256  021403                          CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
 9997 060260  001410                          BEQ     180$                    ;BR, IF ALL IS WELL
 9998 060262  011401                          MOV     (R4),R1                 ;RECD DATA
 9999 060264  010302                          MOV     R3,R2                   ;EXPECTED DATA
10000 060266  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10004 060272                                  ERRHRD  ERRNO,T26DTA,EXPREC     ;DATA READ NOT = WRITTEN
      060272  104456                                                                  TRAP    C$ERHRD
      060274  001154                                                                  .WORD   620
      060276  074242                                                                  .WORD   T26DTA
      060300  015564                                                                  .WORD   EXPREC
10005 060302                          180$:   CKLOOP                          ;LOOP IF SELECTED
      060302  104406                                                                  TRAP    C$CLP1
10006 060304  005724                          TST     (R4)+                   ;BUMP TO NEXT LOCATION
10007 060306  160204                          SUB     R2,R4                   ;CORRECT RECORDS SIZE VALUE
10008 060310  020403                          CMP     R4,R3                   ;END OF RECORD YET
10009 060312  001360                          BNE     173$                    ;BR, IF NOT AT END OF RECORD
10010 060314  005723                          TST     (R3)+                   ;BUMP RECORD SIZE
```

```
TEST  6: REREADS

10011 060316 010337 073162                MOV     R3,T26RSZ               ;STORE RECORD SIZE
10012 060322 022703 000412                CMP     #266.,R3                ;END OF RECORD YET
10013 060326 001270                       BNE     145$                    ;BR, IF MORE RECORDS TO READ
10014 060330                        190$: CKLOOP                          ;LOOP IF SELECTED
      060330 104406                                                                 TRAP    C$CLP1
10015 060332                              ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
      060332                                                                      L10104:
      060332 104403                                                                 TRAP    C$ESUB
10016 060334 023727 002212 000017         CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
10017 060342 103402                       BLO     999$                            ;BR, IF LESS THAN 25
10018 060344 004737 017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
10019 060350                        999$:
10020
10021                                     ;+
10022                                     ;
10023                                     ;TEST 6, SUBTEST 3
10024                                     ;
10025                                     ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=1
10026                                     ;(READ REVERSE, SPACE FORWARD) AND SWB=0 OPERATES
10027                                     ;PROPERLY. THE TAPE IS FIRST REWOUND AND THEN WRITTEN
10028                                     ;WITH A SERIES OF TEST RECORDS VARYING IN LENGTH AND
10029                                     ;DATA CONTENT; THE FIRST FOUR BYTES OF EACH RECORD
10030                                     ;CONTAIN ITS RECORD NUMBER (INDICATING POSITION ON
10031                                     ;TAPE). THE TAPE IS THEN REWOUND AGAIN. FOR EACH
10032                                     ;TEST RECORD, THE FOLLOWING SEQUENCE IS EXECUTED.
10033                                     ;
10034                                     ;1.     THE REREAD PREVIOUS COMMAND WITH OPP=1 IS ISSUED
10035                                     ;       AND THE RESULTS CHECKED
10036                                     ;
10037                                     ;2.     A READ FORWARD COMMAND IS THEN ISSUED AND THE
10038                                     ;       DATA IS CHECKED TO VERIFY THAT THE TAPE WAS
10039                                     ;       POSITIONED PROPERLY AFTER THE REREAD PREVIOUS
10040                                     ;       COMMAND (E.G. THE TAPE SHOULD HAVE BEEN LEFT
10041                                     ;       POSITIONED AT THE START OF THE TEST RECORD). THE
10042                                     ;       READ FORWARD COMMAND LEAVES THE TAPE POSITIONED
10043                                     ;       PROPERLY AT THE START OF THE NEXT TEST RECORD.
10044                                     ;
10045                                     ;THE BYTE COUNT ON EACH REREAD PREVIOUS COMMAND IS SET
10046                                     ;TO THE LENGTH OF THE EXPECTED RECORD, SO NO
10047                                     ;EXCEPTIONAL CONDITIONS SHOULD OCCUR.
10048                                     ;
10049                                     ;
10050                                     ;
10051                                     ;
10052                                     ;-
10053
10054 060350                              BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
      060350                                                                      T6.3:
      060350 104402                                                                 TRAP    C$BSUB
10055 060352 004737 075720                JSR     PC,T26REST              ;SET COMMAND PACKET
10056 060356 005037 073156                CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
10057 060362 004737 076012                JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
10058 060366 004737 076054                JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
10059
10060                                   ;*******************************************************************************
10061                                   ;
10062                                   ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
```

TEST 6: REREADS

```
10063                                   ;
10064                                   ;*************************************************************************
10065
10066 060372  004737  016064                      JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
10067 060376  103407                              BCS     20$                     ;BR IF INIT WAS OK
10068 060400  005237  002212                      INC     FATFLG                  ;BUMP COUNT
10072 060404  010001                              MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
10073 060406                                      ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
       060406  104455                                                                  TRAP    C$ERDF
       060410  001155                                                                  .WORD   621
       060412  003650                                                                  .WORD   SFIERR
       060414  012124                                                                  .WORD   SFIMSG
10074 060416  013737  002172  073020  20$:       MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
10075
10076 060424  012704  073000                      MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
10077
10078                                   ;*************************************************************************
10079                                   ;
10080                                   ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
10081                                   ;
10082                                   ;*************************************************************************
10083
10084 060430  004737  010752                      JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
10085 060434  103407                              BCS     26$                     ;BR, IF COMMAND ISSUED OK
10086 060436  005237  002212                      INC     FATFLG                  ;BUMP COUNT
10090 060442  010001                              MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
10091 060444                                      ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
       060444  104456                                                                  TRAP    C$ERHRD
       060446  001156                                                                  .WORD   622
       060450  005054                                                                  .WORD   WRTMSG
       060452  012124                                                                  .WORD   SFIMSG
10092 060454                            26$:      CKLOOP                          ;LOOP IF SELECTED
       060454  104406                                                                  TRAP    C$CLP1
10093
10094                                   ;*************************************************************************
10095                                   ;
10096                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10097                                   ;
10098                                   ;*************************************************************************
10099
10100 060456  004737  011104                      JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10101 060462  103413                              BCS     30$                     ;BR, IF NO PROBLEM
10102 060464  016501  000002                      MOV     TSSR(R5),R1             ;GET TSSR
10103 060470  012702  000200                      MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
10104 060474  010004                              MOV     R0,R4                   ;PACKET ADDRESS SET UP
10105 060476  005237  002212                      INC     FATFLG                  ;BUMP COUNT
10109 060502                                      ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
       060502  104456                                                                  TRAP    C$ERHRD
       060504  001157                                                                  .WORD   623
       060506  074464                                                                  .WORD   T26RWN
       060510  012136                                                                  .WORD   PKTSSR
10110 060512                            30$:      CKLOOP                          ;LOOP IF SELECTED
       060512  104406                                                                  TRAP    C$CLP1
10111
10112                                   ;*************************************************************************
10113                                   ;
10114                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
```

TEST 6: REREADS

```
10115                                   ;
10116                                   ;*************************************************************************
10117
10118 060514  013701  073030                      MOV     T26BFR+6,R1             ;PICK UP XSTO
10119 060520  010102                              MOV     R1,R2                   ;SET UP EXPECTED
10120 060522  052702  000002                      BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10121 060526  020102                              CMP     R1,R2                   ;DOES EXP = REC'D
10122 060530  001406                              BEQ     40$                     ;BR, IF EQUAL (OK)
10123 060532  005237  002212                      INC     FATFLG                  ;BUMP COUNT
10127 060536                                      ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      060536  104456                                                                  TRAP    C$ERHRD
      060540  001160                                                                  .WORD   624
      060542  074175                                                                  .WORD   T26BOT
      060544  015564                                                                  .WORD   EXPREC
10128 060546                            40$:      CKLOOP                        ;LOOP IF SELECTED
      060546  104406                                                                  TRAP    C$CLP1
10129 060550  012703  000400                      MOV     #256.,R3                ;RECORD SIZE
10130 060554  013737  003114  073132              MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
10131
10132                                   ;*************************************************************************
10133                                   ;
10134                                   ;WRITE DATA,CVC=1,ACK COMMAND
10135                                   ;
10136                                   ;*************************************************************************
10137
10138 060562  012737  140005  073130              MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
10139 060570  012704  073130                      MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10140 060574                            65$:
10141 060574  010300                              MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
10142 060576  004737  017512                      JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
10143 060602  010337  073136                      MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
10144 060606  013777  073156  122300              MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
10145 060614  062737  000001  073156              ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
10146 060622  010465  000000                      MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10147 060626  004737  016340                      JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10148 060632  016501  000002                      MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10149 060636  012702  000200                      MOV     #SSR,R2                 ;SET UP EXPECTED
10150 060642  020102                              CMP     R1,R2                   ;ARE THEY EQUAL
10151 060644  001406                              BEQ     75$                     ;BR, IF OK
10152 060646  005237  002212                      INC     FATFLG                  ;BUMP COUNT
10156 060652                                      ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      060652  104456                                                                  TRAP    C$ERHRD
      060654  001161                                                                  .WORD   625
      060656  005111                                                                  .WORD   WRTERR
      060660  012136                                                                  .WORD   PKTSSR
10157 060662                            75$:      CKLOOP                        ;LOOP IF SELECTED
      060662  104406                                                                  TRAP    C$CLP1
10158 060664  005723                              TST     (R3)+                   ;BUMP THE RECORD SIZE
10159 060666  022703  000414                      CMP     #268.,R3                ;MAXIMUM SIZE YET
10160 060672  001401                              BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
10161 060674  000737                              BR      65$                     ;WRITE MORE RECORDS
10162 060676                            120$:
10163 060676  005037  073156                      CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
10164
10165                                   ;*************************************************************************
10166                                   ;
10167                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
```

TEST 6: REREADS

```
10168                                   ;
10169                                   ;*************************************************************************
10170
10171 060702  004737  011104                      JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10172 060706  103413                              BCS     130$                    ;BR, IF NO PROBLEM
10173 060710  016501  000002                      MOV     TSSR(R5),R1             ;GET TSSR
10174 060714  012702  000200                      MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
10175 060720  010004                              MOV     R0,R4                   ;PACKET ADDRESS SET UP
10176 060722  005237  002212                      INC     FATFLG                  ;BUMP COUNT
10180 060726                                      ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      060726  104456                                                              TRAP    C$ERHRD
      060730  001162                                                              .WORD   626
      060732  074464                                                              .WORD   T26RWN
      060734  012136                                                              .WORD   PKTSSR
10181 060736                            130$:     CKLOOP                        ;LOOP IF SELECTED
      060736  104406                                                              TRAP    C$CLP1
10182
10183                                   ;*************************************************************************
10184                                   ;
10185                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
10186                                   ;
10187                                   ;*************************************************************************
10188
10189 060740  013701  073030                      MOV     T26BFR+6,R1             ;PICK UP XST0
10190 060744  010102                              MOV     R1,R2                   ;SET UP EXPECTED
10191 060746  052702  000002                      BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10192 060752  020102                              CMP     R1,R2                   ;DOES EXP = REC'D
10193 060754  001406                              BEQ     140$                    ;BR, IF EQUAL (OK)
10194 060756  005237  002212                      INC     FATFLG                  ;BUMP COUNT
10198 060762                                      ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      060762  104456                                                              TRAP    C$ERHRD
      060764  001163                                                              .WORD   627
      060766  074175                                                              .WORD   T26BOT
      060770  015564                                                              .WORD   EXPREC
10199 060772                            140$:     CKLOOP                        ;LOOP IF SELECTED
      060772  104406                                                              TRAP    C$CLP1
10200
10201                                   ;*************************************************************************
10202                                   ;
10203                                   ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
10204                                   ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
10205                                   ;
10206                                   ;*************************************************************************
10207
10208 060774  012703  000001                      MOV     #1,R3                   ;SPACE 1 RECORD FORWARD
10209 061000  004737  010556                      JSR     PC,SPACE                ;SPACE CALL
10210 061004  012703  000400                      MOV     #256.,R3                ;RECORD SIZE
10211 061010  013737  003114  073132    150$:     MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
10212
10213                                   ;*************************************************************************
10214                                   ;
10215                                   ;REREAD DATA,CVC=1,ACK, OPP COMMAND
10216                                   ;
10217                                   ;*************************************************************************
10218
10219 061016  012737  161001  073130              MOV     #161001,T26PK3          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
10220 061024  012704  073130            165$:     MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
```

TEST 6: REREADS

```
10221 061030 010337 073136          MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
10222 061034 010465 000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10223 061040 004737 016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10224 061044 016501 000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10225 061050 012702 000200          MOV     #SSR,R2                 ;SET UP EXPECTED
10226 061054 020102                 CMP     R1,R2                   ;ARE THEY EQUAL
10227 061056 001406                 BEQ     170$                    ;BR, IF OK
10228 061060 005237 002212          INC     FATFLG                  ;BUMP COUNT
10232 061064                        ERRHRD  ERRNO,T26RRG,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
      061064 104456                                                         TRAP    C$ERHRD
      061066 001164                                                         .WORD   628
      061070 073502                                                         .WORD   T26RRG
      061072 012136                                                         .WORD   PKTSSR
10233 061074                  170$: CKLOOP                          ;LOOP IF SELECTED
      061074 104406                                                         TRAP    C$CLP1
10234 061076 005723                 TST     (R3)+                   ;BUMP RECORD SIZE
10235 061100 062737 000001 073156   ADD     #1,T26CNT               ;BUMP TAPE RECORD COUNTER
10236
10237                               ;*************************************************************************
10238                               ;
10239                               ;READ DATA, CVC=1, ACK COMMAND
10240                               ;
10241                               ;*************************************************************************
10242
10243 061106 012737 140001 073130    MOV     #140001,T26PK3          ;READ DATA, CVC=1, ACK COMMAND
10244 061114 010337 073136          MOV     R3,T26SZ                ;SET SIZE INTO PACKET
10245 061120 010465 000000          MOV     R4,TSDB(R5)             ;ISSUE READ DATA COMMAND
10246 061124 004737 016340          JSR     PC,WAITF                ;WAIT FOR SSR
10247 061130 016501 000002          MOV     TSSR(R5),R1             ;PICK UP THE TSSR
10248 061134 012702 000200          MOV     #SSR,R2                 ;SET UP EXPECTED
10249 061140 020102                 CMP     R1,R2                   ;IS THE TSSR OK
10250 061142 001406                 BEQ     195$                    ;BR, IF TSSR OK (GOOD)
10251 061144 005237 002212          INC     FATFLG                  ;BUMP COUNT
10255 061150                        ERRHRD  ERRNO,RDERR,PKTSSR      ;READ DATA COMMAND FAILED
      061150 104456                                                         TRAP    C$ERHRD
      061152 001165                                                         .WORD   629
      061154 005204                                                         .WORD   RDERR
      061156 012136                                                         .WORD   PKTSSR
10256 061160                  195$: CKLOOP                          ;LOOP IF SELECTED
      061160 104406                                                         TRAP    C$CLP1
10257 061162 017701 121726          MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
10258 061166 013702 073156          MOV     T26CNT,R2               ;SET UP EXPECTED
10259 061172 020102                 CMP     R1,R2                   ;IS TAPE POSITION CORRECT
10260 061174 001406                 BEQ     197$                    ;KEEP GOING POSITION OK
10261 061176 005237 002212          INC     FATFLG                  ;BUMP COUNT
10265 061202                        ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
      061202 104456                                                         TRAP    C$ERHRD
      061204 001166                                                         .WORD   630
      061206 073166                                                         .WORD   T26WNG
      061210 015564                                                         .WORD   EXPREC
10266 061212                  197$: CKLOOP
      061212 104406                                                         TRAP    C$CLP1
10267 061214 022703 000412          CMP     #266.,R3                ;AT MAX SIZE YET
10268 061220 001401                 BEQ     200$                    ;BR, IF AT END OF THE SUBTEST
10269 061222 000672                 BR      150$                    ;KEEP GOING MORE RECORDS
10270 061224                  200$:
10271 061224                        ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
```

```
TEST  6: REREADS

        061224                                                                  L10105:
        061224  104403                                                                  TRAP    C$ESUB
10272   061226  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
10273   061234  103402                          BLO     999$                    ;BR, IF LESS THAN 25
10274   061236  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
10275   061242                          999$:
10276
10277                                   ;+
10278                                   ;
10279                                   ;TEST 6, SUBTEST 4
10280                                   ;
10281                                   ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=1
10282                                   ;AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
10283                                   ;THE SAME THAT IS USED IN SUBTEST 3, BUT IT IS
10284                                   ;VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
10285                                   ;SWAPPED BYTES.
10286                                   ;
10287                                   ;
10288                                   ;
10289                                   ;-
10290
10291
10292   061242                                  BGNSUB                  ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
        061242                                                                  T6.4:
        061242  104402                                                          TRAP    C$BSUB
10293   061244  004737  075720                  JSR     PC,T26REST              ;SET COMMAND PACKET
10294   061250  005037  073156                  CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
10295   061254  004737  076012                  JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
10296   061260  004737  076054                  JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
10297
10298                                   ;*************************************************************************
10299                                   ;
10300                                   ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
10301                                   ;
10302                                   ;*************************************************************************
10303
10304   061264  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
10305   061270  103407                          BCS     20$                     ;BR IF INIT WAS OK
10306   061272  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10310   061276  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
10311   061300                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
        061300  104455                                                                  TRAP    C$ERDF
        061302  001167                                                                  .WORD   631
        061304  003650                                                                  .WORD   SFIERR
        061306  012124                                                                  .WORD   SFIMSG
10312   061310  013737  002172  073020  20$:     MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
10313
10314   061316  012704  0/3000                  MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
10315
10316                                   ;*************************************************************************
10317                                   ;
10318                                   ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
10319                                   ;
10320                                   ;*************************************************************************
10321
10322   061322  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
10323   061326  103407                          BCS     26$                     ;BR, IF COMMAND ISSUED OK
```

TEST 6: REREADS

```
10324 061330  005237  002212          INC     FATFLG                  ;BUMP COUNT
10328 061334  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
10329 061336                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      061336  104456                                                          TRAP    C$ERHRD
      061340  001170                                                          .WORD   632
      061342  005054                                                          .WORD   WRTMSG
      061344  012124                                                          .WORD   SFIMSG
10330 061346                  26$:    CKLOOP                          ;LOOP IF SELECTED
      061346  104406                                                          TRAP    C$CLP1
10331
10332                                 ;*************************************************************************
10333                                 ;
10334                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10335                                 ;
10336                                 ;*************************************************************************
10337
10338 061350  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10339 061354  103413                  BCS     30$                     ;BR, IF NO PROBLEM
10340 061356  C16501  000002          MOV     TSSR(R5),R1             ;GET TSSR
10341 061362  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
10342 061366  010004                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
10343 061370  005237  002212          INC     FATFLG                  ;BUMP COUNT
10347 061374                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      061374  104456                                                          TRAP    C$ERHRD
      061376  001171                                                          .WORD   633
      061400  074464                                                          .WORD   T26RWN
      061402  012136                                                          .WORD   PKTSSR
10348 061404                  30$:    CKLOOP                          ;LOOP IF SELECTED
      061404  104406                                                          TRAP    C$CLP1
10349
10350                                 ;*************************************************************************
10351                                 ;
10352                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
10353                                 ;
10354                                 ;*************************************************************************
10355
10356 061406  013701  073030          MOV     T26BFR+6,R1             ;PICK UP XSTO
10357 061412  010102                  MOV     R1,R2                   ;SET UP EXPECTED
10358 061414  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10359 061420  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
10360 061422  001406                  BEQ     40$                     ;BR, IF EQUAL (OK)
10361 061424  005237  002212          INC     FATFLG                  ;BUMP COUNT
10365 061430                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      061430  104456                                                          TRAP    C$ERHRD
      061432  001172                                                          .WORD   634
      061434  074175                                                          .WORD   T26BOT
      061436  015564                                                          .WORD   EXPREC
10366 061440                  40$:    CKLOOP                          ;LOOP IF SELECTED
      061440  104406                                                          TRAP    C$CLP1
10367 061442  012703  000400          MOV     #256.,R3                ;RECORD SIZE
10368 061446  013737  003114  073132  MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
10369
10370                                 ;*************************************************************************
10371                                 ;
10372                                 ;WRITE DATA,CVC=1,ACK COMMAND
10373                                 ;
10374                                 ;*************************************************************************
```

TEST 6: REREADS

```
10375
10376 061454  012737  140005  073130          MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
10377 061462  012704  073130                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10378 061466                          65$:
10379 061466  010300                  MOV     R3,R0                           ;SET PATTERN IN CORRECT REGISTER
10380 061470  004737  017512          JSR     PC,FILLMEM                      ;FILL MEMORY WITH RECORD SIZE
10381 061474  010337  073136          MOV     R3,T26SZ                        ;SET UP RECORD SIZE IN PACKET
10382 061500  013777  073156  121406  MOV     T26CNT,@FREE                    ;MOVE TAPE RECORD NUMBER TO BUFFER
10383 061506  062737  000001  073156  ADD     #1,T26CNT                       ;NUMBER READY FOR NEXT RECORD
10384 061514  010465  000000          MOV     R4,TSDB(R5)                     ;ISSUE COMMAND
10385 061520  004737  016340          JSR     PC,WAITF                        ;WAIT FOR SSR TO SET
10386 061524  016501  000002          MOV     TSSR(R5),R1                     ;GET TSSR CONTENTS
10387 061530  012702  000200          MOV     #SSR,R2                         ;SET UP EXPECTED
10388 061534  020102                  CMP     R1,R2                           ;ARE THEY EQUAL
10389 061536  001406                  BEQ     75$                             ;BR, IF OK
10390 061540  005237  002212          INC     FATFLG                          ;BUMP COUNT
10394 061544                          ERRHRD  ERRNO,WRTERR,PKTSSR             ;TSSR INCORRECT AFTER REREAD DATA
      061544  104456                                                                  TRAP    C$ERHRD
      061546  C01173                                                                  .WORD   635
      061550  005111                                                                  .WORD   WRTERR
      061552  012136                                                                  .WORD   PKTSSR
10395 061554                          75$:    CKLOOP                          ;LOOP IF SELECTED
      061554  104406                                                                  TRAP    C$CLP1
10396 061556  005723                  TST     (R3)+                           ;BUMP THE RECORD SIZE
10397 061560  022703  000412          CMP     #266.,R3                        ;MAXIMUM SIZE YET
10398 061564  001401                  BEQ     120$                            ;BR, IF AT END OF WRITE SEQUENCE
10399 061566  000737                  BR      65$                             ;WRITE MORE RECORDS
10400 061570                          120$:
10401 061570  005037  073156          CLR     T26CNT                          ;SET RECORD COUNTER BACK TO ZERO
10402
10403                                 ;*************************************************************************
10404                                 ;
10405                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10406                                 ;
10407                                 ;*************************************************************************
10408
10409 061574  004737  011104          JSR     PC,REWIND                       ;CALL TAPE REWIND COMMAND
10410 061600  103413                  BCS     130$                            ;BR, IF NO PROBLEM
10411 061602  016501  000002          MOV     TSSR(R5),R1                     ;GET TSSR
10412 061606  012702  000200          MOV     #SSR,R2                         ;SET UP EXPECTED TSSR
10413 061612  010004                  MOV     R0,R4                           ;PACKET ADDRESS SET UP
10414 061614  005237  002212          INC     FATFLG                          ;BUMP COUNT
10418 061620                          ERRHRD  ERRNO,T26RWN,PKTSSR             ;REWIND NOT ACCEPTED
      061620  104456                                                                  TRAP    C$ERHRD
      061622  001174                                                                  .WORD   636
      061624  074464                                                                  .WORD   T26RWN
      061626  012136                                                                  .WORD   PKTSSR
10419 061630                          130$:   CKLOOP                          ;LOOP IF SELECTED
      061630  104406                                                                  TRAP    C$CLP1
10420
10421                                 ;*************************************************************************
10422                                 ;
10423                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
10424                                 ;
10425                                 ;*************************************************************************
10426
10427 061632  013701  073030          MOV     T26BFR+6,R1                     ;PICK UP XST0
```

TEST 6: REREADS

```
10428 061636  010102                    MOV     R1,R2                   ;SET UP EXPECTED
10429 061640  052702  000002              BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10430 061644  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
10431 061646  001406                    BEQ     140$                    ;BR, IF EQUAL (OK)
10432 061650  005237  002212            INC     FATFLG                  ;BUMP COUNT
10436 061654                            ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      061654  104456                                                            TRAP    C$ERHRD
      061656  001175                                                            .WORD   637
      061660  074175                                                            .WORD   T26BOT
      061662  015564                                                            .WORD   EXPREC
10437 061664                    140$:   CKLOOP                          ;LOOP IF SELECTED
      061664  104406                                                            TRAP    C$CLP1
10438
10439                           ;*************************************************************************
10440                           ;
10441                           ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
10442                           ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
10443                           ;
10444                           ;*************************************************************************
10445
10446 061666  012703  000001              MOV     #1,R3                   ;SET UP SPACE FORWARD 1
10447 061672  004737  010556              JSR     PC,SPACE                ;ISSUE SPACE COMMAND
10448 061676  012703  000400              MOV     #256.,R3                ;RECORD SIZE
10449 061702  013737  003114  073132  150$:   MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
10450
10451                           ;*************************************************************************
10452                           ;
10453                           ;REREAD DATA,CVC=1,ACK, OPP COMMAND
10454                           ;
10455                           ;*************************************************************************
10456
10457 061710  012737  171001  073130          MOV     #171001,T26PK3          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
10458 061716  012704  073130        165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10459 061722  010337  073136                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
10460 061726  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10461 061732  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10462 061736  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10463 061742  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
10464 061746  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
10465 061750  001406                        BEQ     170$                    ;BR, IF OK
10466 061752  005237  002212                INC     FATFLG                  ;BUMP COUNT
10470 061756                                ERRHRD  ERRNO,T26RRF,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
      061756  104456                                                            TRAP    C$ERHRD
      061760  001176                                                            .WORD   638
      061762  073405                                                            .WORD   T26RRF
      061764  012136                                                            .WORD   PKTSSR
10471 061766                    170$:   CKLOOP                          ;LOOP IF SELECTED
      061766  104406                                                            TRAP    C$CLP1
10472 061770  017701  121120                MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
10473 061774  013702  073156                MOV     T26CNT,R2               ;SET UP EXPECTED
10474 062000  000302                        SWAB    R2                      ;SWAP BYTES IN EXPECTED
10475 062002  020102                        CMP     R1,R2                   ;IS TAPE POSITION CORRECT
10476 062004  001406                        BEQ     190$                    ;KEEP GOING POSITION OK
10477 062006  005237  002212                INC     FATFLG                  ;BUMP COUNT
10481 062012                                ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
      062012  104456                                                            TRAP    C$ERHRD
      062014  001177                                                            .WORD   639
```

```
TEST  6: REREADS

        062016  073166                                                          .WORD   T26WNG
        062020  015564                                                          .WORD   EXPREC
 10482  062022                          190$:   CKLOOP                                  TRAP    C$CLP1
        062022  104406
 10483  062024  005723                          TST     (R3)+                   ;NEXT RECORD SIZE
 10484  062026  062737  000001  073156        ADD     #1,T26CNT               ;BUMP TAPE RECORD COUNTER
 10485
 10486                                  ;*************************************************************************
 10487                                  ;
 10488                                  ;READ DATA, CVC=1, ACK COMMAND
 10489                                  ;
 10490                                  ;*************************************************************************
 10491
 10492  062034  012737  140001  073130        MOV     #140001,T26PK3          ;READ DATA, CVC=1, ACK COMMAND
 10493  062042  010337  073136                MOV     R3,T26SZ                ;SET SIZE INTO PACKET
 10494  062046  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE READ DATA COMMAND
 10495  062052  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR
 10496  062056  016501  000002                MOV     TSSR(R5),R1             ;PICK UP THE TSSR
 10497  062062  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
 10498  062066  020102                        CMP     R1,R2                   ;IS THE TSSR OK
 10499  062070  001406                        BEQ     215$                    ;BR, IF TSSR OK (GOOD)
 10500  062072  005237  002212                INC     FATFLG                  ;BUMP COUNT
 10504  062076                                ERRHRD  ERRNO,T26RDF,PKTSSR     ;READ DATA COMMAND FAILED
        062076  104456                                                                  TRAP    C$ERHRD
        062100  001200                                                                  .WORD   640
        062102  073336                                                                  .WORD   T26RDF
        062104  012136                                                                  .WORD   PKTSSR
 10505  062106                          215$:   CKLOOP                          ;LOOP IF SELECTED
        062106  104406                                                                  TRAP    C$CLP1
 10506  062110  017701  121000                MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
 10507  062114  013702  073156                MOV     T26CNT,R2               ;SET UP EXPECTED
 10508  062120  020102                        CMP     R1,R2                   ;IS TAPE POSITION CORRECT
 10509  062122  001406                        BEQ     217$                    ;KEEP GOING POSITION OK
 10510  062124  005237  002212                INC     FATFLG                  ;BUMP COUNT
 10514  062130                                ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
        062130  104456                                                                  TRAP    C$ERHRD
        062132  001201                                                                  .WORD   641
        062134  073166                                                                  .WORD   T26WNG
        062136  015564                                                                  .WORD   EXPREC
 10515  062140                          217$:   CKLOOP                                  TRAP    C$CLP1
        062140  104406
 10516  062142  022703  000410                CMP     #264.,R3                ;AT MAX SIZE YET
 10517  062146  001401                        BEQ     220$                    ;BR, IF AT END OF THE SUBTEST
 10518  062150  000654                        BR      150$                    ;KEEP GOING MORE RECORDS
 10519  062152                          220$:
 10520  062152                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        062152                                                                          L10106:
        062152  104403                                                                  TRAP    C$ESUB
 10521  062154  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
 10522  062162  103402                        BLO     999$                            ;BR, IF LESS THAN 25
 10523  062164  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
 10524  062170                          999$:
 10525
 10526                                  ;*
 10527                                  ;
 10528                                  ;TEST 6, SUBTEST 5
 10529                                  ;
```

TEST 6: REREADS

```
                        ;VERIFIES THAT A REREAD PREVIOUS COMMAND READING A
                        ;RECORD LONGER THAN THE SPECIFIED BYTE COUNT CAUSES
                        ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
                        ;LONG (RLL) BIT SET. RESULTS ARE VERIFIED FOR BOTH
                        ;STATES OF OPP (0 AND 1).
                        ;
                        ;
                        ;
                        ;-

062170                          BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
062170                                                                      T6.5:
062170  104402                                                              TRAP    C$BSUB
062172  004737  075720          JSR     PC,T26REST              ;SET COMMAND PACKET
062176  004737  076012          JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
062202  004737  076054          JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

                        ;*************************************************************************
                        ;
                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                        ;
                        ;*************************************************************************

062206  004737  016064          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
062212  103407                  BCS     20$                     ;BR IF INIT WAS OK
062214  005237  002212          INC     FATFLG                  ;BUMP COUNT
062220  010001                  MOV     R0,k1                   ;CONTENTS OF TSSR REGISTER
062222                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
062222  104455                                                              TRAP    C$ERDF
062224  001202                                                              .WORD   642
062226  003650                                                              .WORD   SFIERR
062230  012124                                                              .WORD   SFIMSG
062232  013737  002172  073020  20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER

062240  012704  073000                  MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                        ;*************************************************************************
                        ;
                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                        ;
                        ;*************************************************************************

062244  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
062250  103407                  BCS     26$                     ;BR, IF COMMAND ISSUED OK
062252  005237  002212          INC     FATFLG                  ;BUMP COUNT
062256  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
062260                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
062260  104456                                                              TRAP    C$ERHRD
062262  001203                                                              .WORD   643
062264  005054                                                              .WORD   WRTMSG
062266  012124                                                              .WORD   SFIMSG
062270                  26$:    CKLOOP                          ;LOOP IF SELECTED
062270  104406                                                              TRAP    C$CLP1

                        ;*************************************************************************
                        ;
```

TEST 6: REREADS

```
10582                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10583                                   ;
10584                                   ;*************************************************************************
10585
10586 062272  004737  011104                      JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10587 062276  103413                            BCS     30$                     ;BR, IF NO PROBLEM
10588 062300  016501  000002                      MOV     TSSR(R5),R1             ;GET TSSR
10589 062304  012702  000200                      MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
10590 062310  010004                            MOV     R0,R4                   ;PACKET ADDRESS SET UP
10591 062312  005237  002212                      INC     FATFLG                  ;BUMP COUNT
10595 062316                                    ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
       062316  104456                                                                  TRAP    C$ERHRD
       062320  001204                                                                  .WORD   644
       062322  074464                                                                  .WORD   T26RWN
       062324  012136                                                                  .WORD   PKTSSR
10596 062326                            30$:    CKLOOP                          ;LOOP IF SELECTED
       062326  104406                                                                  TRAP    C$CLP1
10597
10598                                   ;*************************************************************************
10599                                   ;
10600                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
10601                                   ;
10602                                   ;*************************************************************************
10603
10604 062330  013701  073030                      MOV     T26BFR+6,R1             ;PICK UP XST0
10605 062334  010102                            MOV     R1,R2                   ;SET UP EXPECTED
10606 062336  052702  000002                      BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10607 062342  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
10608 062344  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
10609 062346  005237  002212                      INC     FATFLG                  ;BUMP COUNT
10613 062352                                    ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
       062352  104456                                                                  TRAP    C$ERHRD
       062354  001205                                                                  .WORD   645
       062356  074175                                                                  .WORD   T26BOT
       062360  015564                                                                  .WORD   EXPREC
10614 062362                            40$:    CKLOOP                          ;LOOP IF SELECTED
       062362  104406                                                                  TRAP    C$CLP1
10615 062364  012703  001000                      MOV     #512.,R3                ;RECORD SIZE
10616 062370  013737  003114  073132              MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
10617
10618                                   ;*************************************************************************
10619                                   ;
10620                                   ;WRITE DATA,CVC=1,ACK COMMAND
10621                                   ;
10622                                   ;*************************************************************************
10623
10624 062376  012737  140005  073130              MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
10625 062404  012704  073130                      MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10626 062410                            65$:
10627 062410  010337  073136                      MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
10628 062414  010465  000000                      MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10629 062420  004737  016340                      JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10630 062424  016501  000002                      MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10631 062430  012702  000200                      MOV     #SSR,R2                 ;SET UP EXPECTED
10632 062434  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
10633 062436  001406                            BEQ     75$                     ;BR, IF OK
10634 062440  005237  002212                      INC     FATFLG                  ;BUMP COUNT
```

```
TEST  6: REREADS

10638 062444                          ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      062444  104456                                                          TRAP    C$ERHRD
      062446  001206                                                          .WORD   646
      062450  005111                                                          .WORD   WRTERR
      062452  012136                                                          .WORD   PKTSSR
10639 062454                    75$:  CKLOOP                          ;LOOP IF SELECTED
      062454  104406                                                          TRAP    C$CLP1
10640 062456  005303                  DEC     R3                      ;SET RECORD SIZE TO 511.
10641 062460  013737  003114  073132  MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
10642
10643                           ;*************************************************************************
10644                           ;
10645                           ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
10646                           ;
10647                           ;*************************************************************************
10648
10649 062466  012737  161001  073130  MOV     #161001,T26PK3          ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
10650 062474  012704  073130  165$:  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10651 062500  010337  073136          MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
10652 062504  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10653 062510  004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10654 062514  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10655 062520  012702  100204          MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
10656 062524  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
10657 062526  001406                  BEQ     170$                    ;BR, IF OK
10658 062530  005237  002212          INC     FATFLG                  ;BUMP COUNT
10662 062534                          ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
      062534  104456                                                          TRAP    C$ERHRD
      062536  001207                                                          .WORD   647
      062540  075542                                                          .WORD   T26TRL
      062542  012136                                                          .WORD   PKTSSR
10663 062544                    170$: CKLOOP                          ;LOOP IF SELECTED
      062544  104406                                                          TRAP    C$CLP1
10664
10665                           ;*************************************************************************
10666                           ;
10667                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
10668                           ;
10669                           ;*************************************************************************
10670
10671 062546  013701  073030          MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
10672 062552  010102                  MOV     R1,R2                   ;SET UP EXPECTED
10673 062554  052702  010000          BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
10674 062560  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
10675 062562  001406                  BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
10676 062564  005237  002212          INC     FATFLG                  ;BUMP COUNT
10680 062570                          ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
      062570  104456                                                          TRAP    C$ERHRD
      062572  001210                                                          .WORD   648
      062574  075310                                                          .WORD   T26LON
      062576  015564                                                          .WORD   EXPREC
10681 062600                    180$: CKLOOP                          ;LOOP IF SELECTED
      062600  104406                                                          TRAP    C$CLP1
10682 062602  012703  000777          MOV     #511.,R3                ;SET RECORD SIZE
10683 062606  013737  003114  073132  MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
10684
10685                           ;*************************************************************************
```

TEST 6: REREADS

```
10686                                   ;
10687                                   ;REREAD DATA,CVC=1,ACK COMMAND
10688                                   ;
10689                                   ;*************************************************************************
10690
10691 062614  012737  141001  073130          MOV     #141001,T26PK3          ;REREAD DATA,CVC=1,ACK COMMAND
10692 062622  012704  073130          365$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10693 062626  010337  073136                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
10694 062632  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10695 062636  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10696 062642  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10697 062646  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
10698 062652  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
10699 062654  001406                          BEQ     370$                    ;BR, IF OK
10700 062656  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10704 062662                                  ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
      062662  104456                                                                  TRAP    C$ERHRD
      062664  001211                                                                  .WORD   649
      062666  C75542                                                                  .WORD   T26TRL
      062670  012136                                                                  .WORD   PKTSSR
10705 062672                          370$:   CKLOOP                          ;LOOP IF SELECTED
      062672  104406                                                                  TRAP    C$CLP1
10706
10707                                   ;*************************************************************************
10708                                   ;
10709                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
10710                                   ;
10711                                   ;*************************************************************************
10712
10713 062674  013701  073030                  MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
10714 062700  010102                          MOV     R1,R2                   ;SET UP EXPECTED
10715 062702  052702  010000                  BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
10716 062706  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
10717 062710  001406                          BEQ     380$                    ;BR, IF EQUAL (ALL IS WELL)
10718 062712  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10722 062716                                  ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XSTO
      062716  104456                                                                  TRAP    C$ERHRD
      062720  001212                                                                  .WORD   650
      062722  075310                                                                  .WORD   T26LON
      062724  015564                                                                  .WORD   EXPREC
10723 062726                          380$:   CKLOOP
      062726  104406                                                                  TRAP    C$CLP1
10724 062730                                  ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
      062730                                                                        L10107:
      062730  104403                                                                  TRAP    C$ESUB
10725 062732  023727  002212  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
10726 062740  103402                                  BLO     999$                    ;BR, IF LESS THAN 25
10727 062742  004737  017272                          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
10728 062746                          999$:
10729
10730                                   ;+
10731                                   ;
10732                                   ;TEST 6, SUBTEST 6
10733                                   ;
10734                                   ;VERIFIES THAT A REREAD PREVIOUS COMMAND READING A
10735                                   ;RECORD SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES
10736                                   ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
```

TEST 6: REREADS

```
10737                                   ;SHORT (RLS) BIT SET. IT IS VERIFIED THAT THE
10738                                   ;RESIDUAL BYTE COUNTER (RBPCR) IN THE MESSAGE BUFFER
10739                                   ;CONTAINS THE PROPER NONZERO VALUE (E.G., THE
10740                                   ;DIFFERENCE BETWEEN THE ORIGINAL BYTE COUNT AND THE
10741                                   ;ACTUAL RECORD LENGTH). RESULTS ARE VERIFIED FOR BOTH
10742                                   ;STATES OF OPP (0 AND 1).
10743                                   ;
10744                                   ;
10745                                   ;
10746                                   ;-
10747 062746                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
       062746                                                                                T6.6:
       062746  104402                                                                          TRAP    C$BSUB
10748 062750  004737  075720                    JSR     PC,T26REST              ;SET COMMAND PACKET
10749 062754  004737  076012                    JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
10750 062760  004737  076054                    JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
10751
10752                                   ;*************************************************************************
10753                                   ;
10754                                   ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
10755                                   ;
10756                                   ;*************************************************************************
10757
10758 062764  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
10759 062770  103407                            BCS     20$                     ;BR IF INIT WAS OK
10760 062772  005237  002212                    INC     FATFLG                  ;BUMP COUNT
10764 062776  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
10765 063000                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
       063000  104455                                                                       TRAP    C$ERDF
       063002  001213                                                                      .WORD   651
       063004  003650                                                                      .WORD   SFIERR
       063006  012124                                                                      .WORD   SFIMSG
10766 063010  013737  002172  073020  20$:      MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
10767
10768 063016  012704  073000                    MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
10769
10770                                   ;*************************************************************************
10771                                   ;
10772                                   ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
10773                                   ;
10774                                   ;*************************************************************************
10775
10776 063022  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
10777 063026  103407                            BCS     26$                     ;BR, IF COMMAND ISSUED OK
10778 063030  005237  002212                    INC     FATFLG                  ;BUMP COUNT
10782 063034  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
10783 063036                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
       063036  104456                                                                       TRAP    C$ERHRD
       063040  001214                                                                      .WORD   652
       063042  005054                                                                      .WORD   WRTMSG
       063044  012124                                                                      .WORD   SFIMSG
10784 063046                            26$:     CKLOOP                         ;LOOP IF SELECTED
       063046  104406                                                                       TRAP    C$CLP1
10785
10786                                   ;*************************************************************************
10787                                   ;
10788                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
```

TEST 6: REREADS

```
10789                                   ;
10790                                   ;*************************************************************************
10791
10792 063050  004737  011104                      JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10793 063054  103413                              BCS     30$                     ;BR, IF NO PROBLEM
10794 063056  016501  000002                      MOV     TSSR(R5),R1             ;GET TSSR
10795 063062  012702  000200                      MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
10796 063066  010004                              MOV     R0,R4                   ;PACKET ADDRESS SET UP
10797 063070  005237  002212                      INC     FATFLG                  ;BUMP COUNT
10801 063074                                      ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      063074  104456                                                                      TRAP    C$ERHRD
      063076  001215                                                                      .WORD   653
      063100  074464                                                                      .WORD   T26RWN
      063102  012136                                                                      .WORD   PKTSSR
10802 063104                            30$:      CKLOOP                        ;LOOP IF SELECTED
      063104  104406                                                                      TRAP    C$CLP1
10803
10804                                   ;*************************************************************************
10805                                   ;
10806                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
10807                                   ;
10808                                   ;*************************************************************************
10809
10810 063106  013701  073030                      MOV     T26FR+6,R1              ;PICK UP XST0
10811 063112  010102                              MOV     R1,R2                   ;SET UP EXPECTED
10812 063114  052702  000002                      BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10813 063120  020102                              CMP     R1,R2                   ;DOES EXP = REC'D
10814 063122  001406                              BEQ     40$                     ;BR, IF EQUAL (OK)
10815 063124  005237  002212                      INC     FATFLG                  ;BUMP COUNT
10819 063130                                      ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      063130  104456                                                                      TRAP    C$ERHRD
      063132  001216                                                                      .WORD   654
      063134  074175                                                                      .WORD   T26BOT
      063136  015564                                                                      .WORD   EXPREC
10820 063140                            40$:      CKLOOP                        ;LOOP IF SELECTED
      063140  104406                                                                      TRAP    C$CLP1
10821 063142  012703  000400                      MOV     #256.,R3                ;RECORD SIZE
10822 063146  013737  003114  073132              MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
10823
10824                                   ;*************************************************************************
10825                                   ;
10826                                   ;WRITE DATA,CVC=1,ACK COMMAND
10827                                   ;
10828                                   ;*************************************************************************
10829
10830 063154  012737  140005  073130              MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
10831 063162  012704  073130                      MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10832 063166                            65$:
10833 063166  010337  073136                      MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
10834 063172  010465  000000                      MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10835 063176  004737  016340                      JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10836 063202  016501  000002                      MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10837 063206  012702  000200                      MOV     #SSR,R2                 ;SET UP EXPECTED
10838 063212  020102                              CMP     R1,R2                   ;ARE THEY EQUAL
10839 063214  001406                              BEQ     75$                     ;BR, IF OK
10840 063216  005237  002212                      INC     FATFLG                  ;BUMP COUNT
10844 063222                                      ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
```

TEST 6: REREADS

```
        063222  104456                                                          TRAP    C$ERHRD
        063224  001217                                                          .WORD   655
        063226  005111                                                          .WORD   WRTERR
        063230  012136                                                          .WORD   PKTSSR
10845   063232                          75$:    CKLOOP                          ;LOOP IF SELECTED
        063232  104406                                                          TRAP    C$CLP1
10846   063234  012703  001000                  MOV     #512.,R3                ;RECORD SIZE
10847   063240  013737  003114  073132          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
10848
10849                           ;*****************************************************************
10850                           ;
10851                           ;REREAD PREVIOUS,ACK,CVC=1,OPP=1
10852                           ;
10853                           ;*****************************************************************
10854
10855   063246  012737  161001  073130          MOV     #161001,T26PK3          ;REREAD PREVIOUS,ACK,CVC=1,OPP=1
10856   063254  012704  073130          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10857   063260  010337  073136                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
10858   063264  C10465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10859   063270  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10860   063274  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10861   063300  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
10862   063304  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
10863   063306  001406                          BEQ     170$                    ;BR, IF OK
10864   063310  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10868   063314                                  ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
        063314  104456                                                          TRAP    C$ERHRD
        063316  001220                                                          .WORD   656
        063320  075542                                                          .WORD   T26TRL
        063322  012136                                                          .WORD   PKTSSR
10869   063324                          170$:   CKLOOP                          ;LOOP IF SELECTED
        063324  104406                                                          TRAP    C$CLP1
10870
10871                           ;*****************************************************************
10872                           ;
10873                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
10874                           ;
10875                           ;*****************************************************************
10876
10877   063326  013701  073030                  MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
10878   063332  010102                          MOV     R1,R2                   ;SET UP EXPECTED
10879   063334  052702  040000                  BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
10880   063340  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
10881   063342  001406                          BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
10882   063344  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10886   063350                                  ERRHRD  ERRNO,T26LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
        063350  104456                                                          TRAP    C$ERHRD
        063352  001221                                                          .WORD   657
        063354  075372                                                          .WORD   T26LOP
        063356  015564                                                          .WORD   EXPREC
10887   063360                          180$:   CKLOOP
        063360  104406                                                          TRAP    C$CLP1
10888   063362  013701  073026                  MOV     T26BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
10889   063366  012702  000400                  MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
10890   063372  020102                          CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
10891   063374  001406                          BEQ     190$                    ;BR, IF CORRECT
10892   063376  005237  002212                  INC     FATFLG                  ;BUMP COUNT
```

TEST 6: REREADS

```
10896 063402                          ERRHRD  ERRNO,T26PBP,EXPREC     ;RBPCR NOT CORRECT
      063402  104456                                                          TRAP    C$ERHRD
      063404  001222                                                          .WORD   658
      063406  075454                                                          .WORD   T26PBP
      063410  015564                                                          .WORD   EXPREC
10897 063412                    190$:   CKLOOP                          ;LOOP IF SELECTED
      063412  104406                                                          TRAP    C$CLP1
10898 063414  012703  001000            MOV     #512.,R3                ;RECORD SIZE
10899 063420  013737  003114  073132    MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
10900
10901                           ;*************************************************************************
10902                           ;
10903                           ;REREAD PREVIOUS,ACK,CVC=1,OPP=0
10904                           ;
10905                           ;*************************************************************************
10906
10907 063426  012737  141001  073130    MOV     #141001,T26PK3          ;REREAD PREVIOUS,ACK,CVC=1,OPP=0
10908 063434  012704  073130            MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10909 063440  C10337  073136            MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
10910 063444  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10911 063450  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10912 063454  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10913 063460  012702  100204            MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
10914 063464  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
10915 063466  001406                    BEQ     270$                    ;BR, IF OK
10916 063470  005237  002212            INC     FATFLG                  ;BUMP COUNT
10920 063474                            ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
      063474  104456                                                          TRAP    C$ERHRD
      063476  001223                                                          .WORD   659
      063500  075542                                                          .WORD   T26TRL
      063502  012136                                                          .WORD   PKTSSR
10921 063504                    270$:   CKLOOP                          ;LOOP IF SELECTED
      063504  104406                                                          TRAP    C$CLP1
10922
10923                           ;*************************************************************************
10924                           ;
10925                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
10926                           ;
10927                           ;*************************************************************************
10928
10929 063506  013701  073030            MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
10930 063512  010102                    MOV     R1,R2                   ;SET UP EXPECTED
10931 063514  052702  040000            BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
10932 063520  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
10933 063522  001406                    BEQ     280$                    ;BR, IF EQUAL (ALL IS WELL)
10934 063524  005237  002212            INC     FATFLG                  ;BUMP COUNT
10938 063530                            ERRHRD  ERRNO,T26LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XSTO
      063530  104456                                                          TRAP    C$ERHRD
      063532  001224                                                          .WORD   660
      063534  075372                                                          .WORD   T26LOP
      063536  015564                                                          .WORD   EXPREC
10939 063540                    280$:   CKLOOP
      063540  104406                                                          TRAP    C$CLP1
10940 063542  013701  073026            MOV     T26BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
10941 063546  012702  000400            MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
10942 063552  020102                    CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
10943 063554  001405                    BEQ     290$                    ;BR, IF CORRECT
```

TEST 6: REREADS

```
10947 063560                          ERRHRD  ERRNO,T26PBP,EXPREC     ;RBPCR NOT CORRECT
      063560  104456                                                          TRAP    C$ERHRD
      063562  001224                                                          .WORD   660
      063564  075454                                                          .WORD   T26PBP
      063566  015564                                                          .WORD   EXPREC
10948 063570                    290$:   CKLOOP                          ;LOOP IF SELECTED
      063570  104406                                                          TRAP    C$CLP1
10949 063572                          ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
      063572                                                                L10110:
      063572  104403                                                          TRAP    C$ESUB
10950 063574  023727  002212  000017        CMP     FATFLG,#15.                 ;IS ERROR COUNT AT 25
10951 063602  103402                        BLO     999$                        ;BR, IF LESS THAN 25
10952 063604  004737  017272                JSR     PC,CKDROP                   ;TRY TO DROP THE UNIT
10953 063610                    999$:
10954
10955                           ;+
10956                           ;
10957                           ;TEST 6, SUBTEST 7
10958                           ;
10959                           ;
10960                           ;VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=0
10961                           ;AND SWB=0 OPERATES PROPERLY. THE TAPE IS FIRST
10962                           ;REWOUND AND THEN WRITTEN WITH A SERIES OF TEST
10963                           ;RECORDS VARYING IN LENGTH AND DATA CONTENT. THE TAPE
10964                           ;IS THEN REWOUND AGAIN. FOR EACH TEST RECORD, THE
10965                           ;TAPE IS SPACED FORWARD ONE RECORD AND A REREAD
10966                           ;NEXT COMMAND ISSUED. RESULTS (STATUS, DATA,
10967                           ;ETC.) ARE VERIFIED. THE BYTE COUNT ON EACH REREAD
10968                           ;NEXT COMMAND IS SET TO THE LENGTH OF THE EXPECTED
10969                           ;RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD OCCUR.
10970                           ;
10971                           ;
10972                           ;-
10973
10974
10975 063610                          BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
      063610                                                                T6.7:
      063610  104402                                                          TRAP    C$BSUB
10976 063612  004737  075720          JSR     PC,T26REST                  ;SET COMMAND PACKET
10977 063616  004737  076012          JSR     PC,T26RT2                   ;SET UP OTHER COMMAND PACKET
10978 063622  004737  076054          JSR     PC,T26RT3                   ;SET UP OTHER COMMAND PACKET
10979
10980                           ;*****************************************************************
10981                           ;
10982                           ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
10983                           ;
10984                           ;*****************************************************************
10985
10986 063626  004737  016064          JSR     PC,SOFINIT                  ;DO INITIALIZE ON CONTROLLER
10987 063632  103407                  BCS     20$                         ;BR IF INIT WAS OK
10988 063634  005237  002212          INC     FATFLG                      ;BUMP COUNT
10992 063640  010001                  MOV     R0,R1                       ;CONTENTS OF TSSR REGISTER
10993 063642                          ERRDF   ERRNO,SFIERR,SFIMSG         ;FATAL ERROR TSSR WAS NOT OK
      063642  104455                                                          TRAP    C$ERDF
      063644  001225                                                          .WORD   661
      063646  003650                                                          .WORD   SFIERR
      063650  012124                                                          .WORD   SFIMSG
```

TEST 6: REREADS

```
10994 063652  013737  002172  073020  20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
10995
10996 063660  012704  073000                  MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
10997
10998                                 ;*************************************************************************
10999                                 ;
11000                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
11001                                 ;
11002                                 ;*************************************************************************
11003
11004 063664  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
11005 063670  103407                  BCS     26$                     ;BR, IF COMMAND ISSUED OK
11006 063672  005237  002212          INC     FATFLG                  ;BUMP COUNT
11010 063676  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
11011 063700                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      063700  104456                                                          TRAP    C$ERHRD
      063702  001226                                                          .WORD   662
      063704  005054                                                          .WORD   WRTMSG
      063706  012124                                                          .WORD   SFIMSG
11012 063710                          26$:    CKLOOP                  ;LOOP IF SELECTED
      063710  104406                                                          TRAP    C$CLP1
11013
11014                                 ;*************************************************************************
11015                                 ;
11016                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
11017                                 ;
11018                                 ;*************************************************************************
11019
11020 063712  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
11021 063716  103413                  BCS     30$                     ;BR, IF NO PROBLEM
11022 063720  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR
11023 063724  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
11024 063730  010004                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
11025 063732  005237  002212          INC     FATFLG                  ;BUMP COUNT
11029 063736                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      063736  104456                                                          TRAP    C$ERHRD
      063740  001227                                                          .WORD   663
      063742  074464                                                          .WORD   T26RWN
      063744  012136                                                          .WORD   PKTSSR
11030 063746                          30$:    CKLOOP                  ;LOOP IF SELECTED
      063746  104406                                                          TRAP    C$CLP1
11031
11032                                 ;*************************************************************************
11033                                 ;
11034                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
11035                                 ;
11036                                 ;*************************************************************************
11037
11038 063750  013701  073030                  MOV     T26BFR+6,R1             ;PICK UP XST0
11039 063754  010102                  MOV     R1,R2                   ;SET UP EXPECTED
11040 063756  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
11041 063762  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
11042 063764  001406                  BEQ     40$                     ;BR, IF EQUAL (OK)
11043 063766  005237  002212          INC     FATFLG                  ;BUMP COUNT
11047 063772                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      063772  104456                                                          TRAP    C$ERHRD
      063774  001230                                                          .WORD   664
```

TEST 6: REREADS

```
                063776  074175                                                          .WORD   T26BOT
                064000  015564                                                          .WORD   EXPREC
 11048          064002                          40$:    CKLOOP                          ;LOOP IF SELECTED
                064002  104406                                                          TRAP    C$CLP1
 11049          064004  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
 11050          064010  013737  003114  073132          MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
 11051
 11052                                                  ;*************************************************************************
 11053                                                  ;
 11054                                                  ;WRITE DATA,CVC=1,ACK COMMAND
 11055                                                  ;
 11056                                                  ;*************************************************************************
 11057
 11058          064016  012737  140005  073130          MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
 11059          064024  012704  073130                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 11060          064030                          65$:
 11061          064030  010300                  MOV     R3,R0                           ;SET PATTERN IN CORRECT REGISTER
 11062          064032  004737  017512          JSR     PC,FILLMEM                      ;FILL MEMORY WITH RECORD SIZE
 11063          064036  010337  073136          MOV     R3,T26SZ                        ;SET UP RECORD SIZE IN PACKET
 11064          064042  010465  000000          MOV     R4,TSDB(R5)                     ;ISSUE COMMAND
 11065          064046  004737  016340          JSR     PC,WAITF                        ;WAIT FOR SSR TO SET
 11066          064052  016501  000002          MOV     TSSR(R5),R1                     ;GET TSSR CONTENTS
 11067          064056  012702  000200          MOV     #SSR,R2                         ;SET UP EXPECTED
 11068          064062  020102                  CMP     R1,R2                           ;ARE THEY EQUAL
 11069          064064  001406                  BEQ     75$                             ;BR, IF OK
 11070          064066  005237  002212          INC     FATFLG                          ;BUMP COUNT
 11074          064072                          ERRHRD  ERRNO,WRTERR,PKTSSR             ;TSSR INCORRECT AFTER WRITE DATA
                064072  104456                                                          TRAP    C$ERHRD
                064074  001231                                                          .WORD   665
                064076  005111                                                          .WORD   WRTERR
                064100  012136                                                          .WORD   PKTSSR
 11075          064102                          75$:    CKLOOP                          ;LOOP IF SELECTED
                064102  104406                                                          TRAP    C$CLP1
 11076          064104  005723                  TST     (R3)+                           ;BUMP RECORD SIZE
 11077          064106  022703  000414          CMP     #268.,R3                        ;END OF RECORD YET
 11078          064112  001346                  BNE     65$                             ;BR, IF MORE RECORDS TO WRITE
 11079          064114                          80$:    CKLOOP                          ;LOOP IF SELECTED
                064114  104406                                                          TRAP    C$CLP1
 11080          064116                          120$:
 11081
 11082                                                  ;*************************************************************************
 11083                                                  ;
 11084                                                  ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 11085                                                  ;
 11086                                                  ;*************************************************************************
 11087
 11088          064116  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 11089          064122  103413                  BCS     130$                            ;BR, IF NO PROBLEM
 11090          064124  016501  000002          MOV     TSSR(R5),R1                     ;GET TSSR
 11091          064130  012702  000200          MOV     #SSR,R2                         ;SET UP EXPECTED TSSR
 11092          064134  010004                  MOV     R0,R4                           ;PACKET ADDRESS SET UP
 11093          064136  005237  002212          INC     FATFLG                          ;BUMP COUNT
 11097          064142                          ERRHRD  ERRNO,T26RWN,PKTSSR             ;REWIND NOT ACCEPTED
                064142  104456                                                          TRAP    C$ERHRD
                064144  001232                                                          .WORD   666
                064146  074464                                                          .WORD   T26RWN
                064150  012136                                                          .WORD   PKTSSR
```

TEST 6: REREADS

```
11098 064152                          130$:   CKLOOP                          ;LOOP IF SELECTED
      064152  104406                                                                  TRAP    C$CLP1
11099
11100                                 ;*************************************************************************
11101                                 ;
11102                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
11103                                 ;
11104                                 ;*************************************************************************
11105
11106 064154  013701  073030                  MOV     T26BFR+6,R1             ;PICK UP XST0
11107 064160  010102                          MOV     R1,R2                   ;SET UP EXPECTED
11108 064162  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
11109 064166  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
11110 064170  001406                          BEQ     140$                    ;BR, IF EQUAL (OK)
11111 064172  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11115 064176                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      064176  104456                                                                  TRAP    C$ERHRD
      064200  001233                                                                  .WORD   667
      064202  C74175                                                                  .WORD   T26BOT
      064204  015564                                                                  .WORD   EXPREC
11116 064206                          140$:   CKLOOP                          ;LOOP IF SELECTED
      064206  104406                                                                  TRAP    C$CLP1
11117 064210  012737  000400  073162          MOV     #256.,T26RSZ            ;STORE START RECORD SIZE
11118 064216  000420                          BR      150$                    ;SKIP THE SAPCE THIS TIME
11119
11120                                 ;*************************************************************************
11121                                 ;
11122                                 ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
11123                                 ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
11124                                 ;
11125                                 ;*************************************************************************
11126
11127 064220  012703  000001          145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
11128 064224  004737  010556                  JSR     PC,SPACE                ;CALL SPACE ROUTINE
11129 064230  103413                          BCS     150$                    ;BR, IF NO PROBLEM WITH SPACE COMMAND
11130 064232  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
11131 064236  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
11132 064242  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
11133 064244  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11137 064250                                  ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
      064250  104456                                                                  TRAP    C$ERHRD
      064252  001234                                                                  .WORD   668
      064254  073577                                                                  .WORD   T26SC
      064256  015564                                                                  .WORD   EXPREC
11138 064260                          150$:   CKLOOP
      064260  104406                                                                  TRAP    C$CLP1
11139 064262  013703  073162                  MOV     T26RSZ,R3               ;RECORD SIZE
11140 064266  013737  003114  073132          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
11141
11142                                 ;*************************************************************************
11143                                 ;
11144                                 ;REREREAD DATA,CVC=1,ACK COMMAND
11145                                 ;
11146                                 ;*************************************************************************
11147
11148 064274  012737  141401  073130          MOV     #141401,T26PK3          ;REREREAD DATA,CVC=1,ACK COMMAND
11149 064302  012704  073130          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
```

TEST 6: REREADS

```
11150 064306 010337 073136          MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
11151 064312 010465 000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
11152 064316 004737 016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
11153 064322 016501 000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
11154 064326 012702 000200          MOV     #SSR,R2                 ;SET UP EXPECTED
11155 064332 020102                 CMP     R1,R2                   ;ARE THEY EQUAL
11156 064334 001406                 BEQ     170$                    ;BR, IF OK
11157 064336 005237 002212          INC     FATFLG                  ;BUMP COUNT
11161 064342                        ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
      064342 104456                                                             TRAP    C$ERHRD
      064344 001235                                                             .WORD   669
      064346 075020                                                             .WORD   T26WDC
      064350 012136                                                             .WORD   PKTSSR
11162 064352                170$:   CKLOOP                          ;LOOP IF SELECTED
      064352 104406                                                             TRAP    C$CLP1
11163 064354 013702 003114          MOV     FREE,R2         ;CURRENT BUFFER ADDRESS TO R2
11164 064360 010304                 MOV     R3,R4                   ;CURRENT RECORD SIZE
11165 064362 162704 000400          SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
11166 064366 060204                 ADD     R2,R4           173$:   ;SET UP POINTER
11167 064370 021403                 CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
11168 064372 001410                 BEQ     180$                    ;BR, IF ALL IS WELL
11169 064374 011401                 MOV     (R4),R1                 ;RECD DATA
11170 064376 010302                 MOV     R3,R2                   ;EXPECTED DATA
11171 064400 005237 002212          INC     FATFLG                  ;BUMP COUNT
11175 064404                        ERRHRD  ERRNO,T26DTA,EXPREC     ;DATA READ NOT = WRITTEN
      064404 104456                                                             TRAP    C$ERHRD
      064406 001236                                                             .WORD   670
      064410 074242                                                             .WORD   T26DTA
      064412 015564                                                             .WORD   EXPREC
11176 064414                180$:   CKLOOP                          ;LOOP IF SELECTED
      064414 104406                                                             TRAP    C$CLP1
11177 064416 005724                 TST     (R4)+                   ;BUMP TO NEXT LOCATION
11178 064420 160204                 SUB     R2,R4                   ;CORRECT RECORDS SIZE VALUE
11179 064422 020403                 CMP     R4,R3                   ;END OF RECORD YET
11180 064424 001360                 BNE     173$                    ;BR, IF NOT AT END OF RECORD
11181 064426 005723                 TST     (R3)+                   ;BUMP RECORD SIZE
11182 064430 010337 073162          MOV     R3,T26RSZ               ;STORE PRESENT RECORD SIZE
11183 064434 022703 000410          CMP     #264.,R3                ;END OF RECORD YET
11184 064440 001267                 BNE     145$                    ;BR, IF MORE RECORDS TO READ
11185 064442                190$:   CKLOOP                          ;LOOP IF SELECTED
      064442 104406                                                             TRAP    C$CLP1
11186 064444                        ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
      064444                                                                    L10111:
      064444 104403                                                             TRAP    C$ESUB
11187 064446 023727 002212 000017           CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
11188 064454 103402                         BLO     999$                            ;BR, IF LESS THAN 25
11189 064456 004737 017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
11190 064462                999$:
11191
11192                               ;+
11193                               ;
11194                               ;TEST 6, SUBTEST 8
11195                               ;
11196                               ;VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=0
11197                               ;AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
11198                               ;THE SAME AS THAT USED IN SUBTEST 1, BUT IT IS
11199                               ;VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
```

TEST 6: REREADS

```
11200                                   ;SWAPPED BYTES.
11201                                   ;
11202                                   ;
11203                                   ;
11204                                   ;-
11205 064462                                    BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
      064462                                                                                    T6.8:
      064462  104402                                                                                    TRAP    C$BSUB
11206 064464  004737  075720                    JSR     PC,T26REST              ;SET COMMAND PACKET
11207 064470  004737  076012                    JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
11208 064474  004737  076054                    JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
11209
11210                                   ;*************************************************************************
11211                                   ;
11212                                   ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
11213                                   ;
11214                                   ;*************************************************************************
11215
11216 064500  C04737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
11217 064504  103407                          BCS     20$                     ;BR IF INIT WAS OK
11218 064506  005237  002212                    INC     FATFLG                  ;BUMP COUNT
11222 064512  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
11223 064514                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      064514  104455                                                                            TRAP    C$ERDF
      064516  001237                                                                           .WORD   671
      064520  003650                                                                           .WORD   SFIERR
      064522  012124                                                                           .WORD   SFIMSG
11224 064524  013737  002172  073020  20$:      MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
11225
11226 064532  012704  073000                    MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
11227
11228                                   ;*************************************************************************
11229                                   ;
11230                                   ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
11231                                   ;
11232                                   ;*************************************************************************
11233
11234 064536  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
11235 064542  103407                          BCS     26$                     ;BR, IF COMMAND ISSUED OK
11236 064544  005237  002212                    INC     FATFLG                  ;BUMP COUNT
11240 064550  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
11241 064552                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      064552  104456                                                                            TRAP    C$ERHRD
      064554  001240                                                                           .WORD   672
      064556  005054                                                                           .WORD   WRTMSG
      064560  012124                                                                           .WORD   SFIMSG
11242 064562                          26$:      CKLOOP                          ;LOOP IF SELECTED
      064562  104406                                                                            TRAP    C$CLP1
11243
11244                                   ;*************************************************************************
11245                                   ;
11246                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
11247                                   ;
11248                                   ;*************************************************************************
11249
11250 064564  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
11251 064570  103413                          BCS     30$                     ;BR, IF NO PROBLEM
```

TEST 6: REREADS

```
11252 064572  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
11253 064576  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
11254 064602  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
11255 064604  005237  002212                INC     FATFLG                  ;BUMP COUNT
11259 064610                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      064610  104456                                                                TRAP    C$ERHRD
      064612  001241                                                                .WORD   673
      064614  074464                                                                .WORD   T26RWN
      064616  012136                                                                .WORD   PKTSSR
11260 064620                        30$:    CKLOOP                          ;LOOP IF SELECTED
      064620  104406                                                                TRAP    C$CLP1
11261
11262                               ;*************************************************************************
11263                               ;
11264                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
11265                               ;
11266                               ;*************************************************************************
11267
11268 064622  C13701  073030                MOV     T26BFR+6,R1             ;PICK UP XST0
11269 064626  010102                        MOV     R1,R2                   ;SET UP EXPECTED
11270 064630  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
11271 064634  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
11272 064636  001406                        BEQ     40$                     ;BR. IF EQUAL (OK)
11273 064640  005237  002212                INC     FATFLG                  ;BUMP COUNT
11277 064644                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      064644  104456                                                                TRAP    C$ERHRD
      064646  001242                                                                .WORD   674
      064650  074175                                                                .WORD   T26BOT
      064652  015564                                                                .WORD   EXPREC
11278 064654                        40$:    CKLOOP                          ;LOOP IF SELECTED
      064654  104406                                                                TRAP    C$CLP1
11279 064656  012703  000400                MOV     #256.,R3                ;RECORD SIZE
11280 064662  013737  003114  073132        MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
11281
11282                               ;*************************************************************************
11283                               ;
11284                               ;WRITE DATA,CVC=1,ACK,SWB COMMAND
11285                               ;
11286                               ;*************************************************************************
11287
11288 064670  012737  150005  073130        MOV     #150005,T26PK3          ;WRITE DATA,CVC=1,ACK,SWB COMMAND
11289 064676  012704  073130                MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
11290 064702                        65$:
11291 064702  010300                        MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
11292 064704  004737  017512                JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
11293 064710  010337  073136                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
11294 064714  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
11295 064720  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
11296 064724  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
11297 064730  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
11298 064734  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
11299 064736  001406                        BEQ     75$                     ;BR. IF OK
11300 064740  005237  002212                INC     FATFLG                  ;BUMP COUNT
11304 064744                                ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      064744  104456                                                                TRAP    C$ERHRD
      064746  001243                                                                .WORD   675
      064750  005111                                                                .WORD   WRTERR
```

```
TEST  6: REREADS

        064752  012136                                                          .WORD   PKTSSR
11305   064754                  75$:    CKLOOP                  ;LOOP IF SELECTED
        064754  104406                                                          TRAP    C$CLP1
11306   064756  005723                  TST     (R3)+           ;BUMP RECORD SIZE
11307   064760  022703  000414         CMP     #268.,R3        ;END OF RECORD YET
11308   064764  001346                 BNE     65$             ;BR, IF MORE RECORDS TO WRITE
11309   064766                  80$:    CKLOOP                  ;LOOP IF SELECTED
        064766  104406                                                          TRAP    C$CLP1
11310   064770                  120$:
11311
11312                           ;*************************************************************************
11313                           ;
11314                           ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
11315                           ;
11316                           ;*************************************************************************
11317
11318   064770  004737  011104         JSR     PC,REWIND       ;CALL TAPE REWIND COMMAND
11319   064774  103413                 BCS     130$            ;BR, IF NO PROBLEM
11320   064776  C16501  000002         MOV     TSSR(R5),R1     ;GET TSSR
11321   065002  012702  000200         MOV     #SSR,R2         ;SET UP EXPECTED TSSR
11322   065006  010004                 MOV     R0,R4           ;PACKET ADDRESS SET UP
11323   065010  005237  002212         INC     FATFLG          ;BUMP COUNT
11327   065014                         ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
        065014  104456                                                          TRAP    C$ERHRD
        065016  001244                                                          .WORD   676
        065020  074464                                                          .WORD   T26RWN
        065022  012136                                                          .WORD   PKTSSR
11328   065024                  130$:   CKLOOP                  ;LOOP IF SELECTED
        065024  104406                                                          TRAP    C$CLP1
11329
11330                           ;*************************************************************************
11331                           ;
11332                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
11333                           ;
11334                           ;*************************************************************************
11335
11336   065026  013701  073030         MOV     T26BFR+6,R1     ;PICK UP XSTO
11337   065032  010102                 MOV     R1,R2           ;SET UP EXPECTED
11338   065034  052702  000002         BIS     #BIT1,R2        ;SET BOT BIT IN EXPECTED
11339   065040  020102                 CMP     R1,R2           ;DOES EXP = REC'D
11340   065042  001406                 BEQ     140$            ;BR, IF EQUAL (OK)
11341   065044  005237  002212         INC     FATFLG          ;BUMP COUNT
11345   065050                         ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
        065050  104456                                                          TRAP    C$ERHRD
        065052  001245                                                          .WORD   677
        065054  074175                                                          .WORD   T26BOT
        065056  015564                                                          .WORD   EXPREC
11346   065060                  140$:   CKLOOP                  ;LOOP IF SELECTED
        065060  104406                                                          TRAP    C$CLP1
11347   065062  012737  000400  073162         MOV     #256.,T26RSZ    ;START RECORD SIZE
11348   065070  000420                 BR      150$            ;SKIP SAPCE THIS TIME
11349
11350                           ;*************************************************************************
11351                           ;
11352                           ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
11353                           ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
11354                           ;
```

```
                                        ;*****************************************************************
065072  012703  000001                  145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
065076  004737  010556                          JSR     PC,SPACE                ;CALL SPACE ROUTINE
065102  103413                                  BCS     150$                    ;BR, IF NO PROBLEM WITH SPACE COMMAND
065104  016501  000002                          MOV     TSSR(R5),R1             ;GET TSSR
065110  012702  000200                          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
065114  010004                                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
065116  005237  002212                          INC     FATFLG                  ;BUMP COUNT
065122                                          ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
065122  104456                                                                                  TRAP    C$ERHRD
065124  001246                                                                                  .WORD   678
065126  073577                                                                                  .WORD   T26SC
065130  015564                                                                                  .WORD   EXPREC
065132                                  150$:   CKLOOP
065132  104406                                                                                  TRAP    C$CLP1
065134  013703  073162                          MOV     T26RSZ,R3               ;RECORD SIZE
065140  013737  003114  073132                  MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS

                                        ;*****************************************************************
                                        ;
                                        ;REREAD DATA,ACK,CVC=1,SWB COMMAND
                                        ;
                                        ;*****************************************************************

065146  012737  151401  073130                  MOV     #151401,T26PK3          ;REREAD DATA,ACK,CVC=1,SWB COMMAND
065154  012704  073130                  165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
065160  010337  073136                          MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
065164  010465  000000                          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
065170  004737  016340                          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
065174  016501  000002                          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
065200  012702  000200                          MOV     #SSR,R2                 ;SET UP EXPECTED
065204  020102                                  CMP     R1,R2                   ;ARE THEY EQUAL
065206  001406                                  BEQ     170$                    ;BR, IF OK
065210  005237  002212                          INC     FATFLG                  ;BUMP COUNT
065214                                          ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
065214  104456                                                                                  TRAP    C$ERHRD
065216  001247                                                                                  .WORD   679
065220  075020                                                                                  .WORD   T26WDC
065222  012136                                                                                  .WORD   PKTSSR
065224                                  170$:   CKLOOP                          ;LOOP IF SELECTED
065224  104406                                                                                  TRAP    C$CLP1
065226  013702  003114                          MOV     FREE,R2         ;CURRENT BUFFER ADDRESS TO R2
065232  010304                                  MOV     R3,R4                   ;CURRENT RECORD SIZE
065234  162704  000400                          SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
065240  060204                          173$:   ADD     R2,R4                   ;SET UP POINTER
065242  021403                                  CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
065244  001410                                  BEQ     180$                    ;BR, IF ALL IS WELL
065246  011401                                  MOV     (R4),R1                 ;RECD DATA
065250  010302                                  MOV     R3,R2                   ;EXPECTED DATA
065252  005237  002212                          INC     FATFLG                  ;BUMP COUNT
065256                                          ERRHRD  ERRNO,T26DTA,EXPREC     ;DATA READ NOT = WRITTEN
065256  104456                                                                                  TRAP    C$ERHRD
065260  001250                                                                                  .WORD   680
065262  074242                                                                                  .WORD   T26DTA
065264  015564                                                                                  .WORD   EXPREC
065266                                  180$:   CKLOOP                          ;LOOP IF SELECTED
```

```
TEST  6: REREADS

        065266  104406                                                          TRAP    C$CLP1
 11407  065270  005724                          TST     (R4)+                 ;BUMP TO NEXT LOCATION
 11408  065272  160204                          SUB     R2,R4                 ;CORRECT RECORDS SIZE VALUE
 11409  065274  020403                          CMP     R4,R3                 ;END OF RECORD YET
 11410  065276  001360                          BNE     173$                  ;BR, IF NOT AT END OF RECORD
 11411  065300  005723                          TST     (R3)+                 ;BUMP RECORD SIZE
 11412  065302  010337  073162                  MOV     R3,T26RSZ             ;STORE RECORD SIZE
 11413  065306  022703  000410                  CMP     #264.,R3              ;END OF RECORD YET
 11414  065312  001267                          BNE     145$                  ;BR, IF MORE RECORDS TO WRITE
 11415  065314                          190$:   CKLOOP                        ;LOOP IF SELECTED
        065314  104406                                                          TRAP    C$CLP1
 11416  065316                          ENDSUB                                ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
        065316                                                                  L10112:
        065316  104403                                                          TRAP    C$ESUB
 11417  065320  023727  002212  000017          CMP     FATFLG,#15.                   ;IS ERROR COUNT AT 25
 11418  065326  103402                          BLO     999$                          ;BR, IF LESS THAN 25
 11419  065330  004737  017272                  JSR     PC,CKDROP                     ;TRY TO DROP THE UNIT
 11420  065334                          999$:
 11421
 11422                                  ;+
 11423                                  ;
 11424                                  ;TEST 6, SUBTEST 9
 11425                                  ;
 11426                                  ;VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=1
 11427                                  ;(READ FORWARD, SPACE REVERSE) AND SWB=0 OPERATES
 11428                                  ;PROPERLY. THE TAPE IS FIRST REWOUND AND THEN WRITTEN
 11429                                  ;WITH A SERIES OF TEST RECORDS VARYING IN LENGTH AND
 11430                                  ;DATA CONTENT; THE FIRST FOUR BYTES OF EACH RECORD
 11431                                  ;CONTAIN ITS RECORD NUMBER (INDICATING POSITION ON
 11432                                  ;TAPE). THE TAPE IS THEN REWOUND AGAIN. FOR EACH
 11433                                  ;TEST RECORD, THE FOLLOWING SEQUENCE IS EXECUTED.
 11434                                  ;
 11435                                  ;1.     THE REREAD NEXT COMMAND WITH OPP=1 IS ISSUED
 11436                                  ;       AND THE RESULTS CHECKED
 11437                                  ;
 11438                                  ;2.     A READ FORWARD COMMAND IS THEN ISSUED AND THE
 11439                                  ;       DATA IS CHECKED TO VERIFY THAT THE TAPE WAS
 11440                                  ;       POSITIONED PROPERLY AFTER THE REREAD NEXT
 11441                                  ;       COMMAND (E.G. THE TAPE SHOULD HAVE BEEN LEFT
 11442                                  ;       POSITIONED AT THE START OF THE TEST RECORD). THE
 11443                                  ;       READ FORWARD COMMAND LEAVES THE TAPE POSITIONED
 11444                                  ;       PROPERLY AT THE START OF THE NEXT TEST RECORD.
 11445                                  ;
 11446                                  ;THE BYTE COUNT ON EACH REREAD NEXT COMMAND IS SET
 11447                                  ;TO THE LENGTH OF THE EXPECTED RECORD, SO NO
 11448                                  ;EXCEPTIONAL CONDITIONS SHOULD OCCUR.
 11449                                  ;
 11450                                  ;
 11451                                  ;
 11452                                  ;
 11453                                  ;-
 11454
 11455  065334                          BGNSUB                                ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
        065334                                                                  T6.9:
        065334  104402                                                          TRAP    C$BSUB
 11456  065336  004737  075720                  JSR     PC,T26REST            ;SET COMMAND PACKET
 11457  065342  005037  073156                  CLR     T26CNT                ;CLEAR TAPE RECORD COUNTER
```

TEST 6: REREADS

```
11458 065346  004737  076012                JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
11459 065352  004737  076054                JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
11460
11461                                ;*************************************************************************
11462                                ;
11463                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
11464                                ;
11465                                ;*************************************************************************
11466
11467 065356  004737  016064                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
11468 065362  103407                        BCS     20$                     ;BR IF INIT WAS OK
11469 065364  005237  002212                INC     FATFLG                  ;BUMP COUNT
11473 065370  010001                        MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
11474 065372                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      065372  104455                                                                TRAP    C$ERDF
      065374  001251                                                                .WORD   681
      065376  003650                                                                .WORD   SFIERR
      065400  012124                                                                .WORD   SFIMSG
11475 065402  C13737  002172  073020  20$:   MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
11476
11477 065410  012704  073000                MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
11478
11479                                ;*************************************************************************
11480                                ;
11481                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
11482                                ;
11483                                ;*************************************************************************
11484
11485 065414  004737  010752                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
11486 065420  103407                        BCS     26$                     ;BR, IF COMMAND ISSUED OK
11487 065422  005237  002212                INC     FATFLG                  ;BUMP COUNT
11491 065426  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
11492 065430                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      065430  104456                                                                TRAP    C$ERHRD
      065432  001252                                                                .WORD   682
      065434  005054                                                                .WORD   WRTMSG
      065436  012124                                                                .WORD   SFIMSG
11493 065440                        26$:    CKLOOP                          ;LOOP IF SELECTED
      065440  104406                                                                TRAP    C$CLP1
11494
11495                                ;*************************************************************************
11496                                ;
11497                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
11498                                ;
11499                                ;*************************************************************************
11500
11501 065442  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
11502 065446  103413                        BCS     30$                     ;BR, IF NO PROBLEM
11503 065450  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
11504 065454  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
11505 065460  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
11506 065462  005237  002212                INC     FATFLG                  ;BUMP COUNT
11510 065466                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      065466  104456                                                                TRAP    C$ERHRD
      065470  001253                                                                .WORD   683
      065472  074464                                                                .WORD   T26RWN
      065474  012136                                                                .WORD   PKTSSR
```

TEST 6: REREADS

```
11511 065476                          30$:    CKLOOP                          ;LOOP IF SELECTED
      065476  104406                                                                TRAP    C$CLP1
11512
11513                                 ;*************************************************************************
11514                                 ;
11515                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
11516                                 ;
11517                                 ;*************************************************************************
11518
11519 065500  013701  073030                  MOV     T26BFR+6,R1             ;PICK UP XST0
11520 065504  010102                          MOV     R1,R2                   ;SET UP EXPECTED
11521 065506  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
11522 065512  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
11523 065514  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
11524 065516  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11528 065522                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      065522  104456                                                                TRAP    C$ERHRD
      065524  001254                                                                .WORD   684
      065526  C74175                                                                .WORD   T26BOT
      065530  015564                                                                .WORD   EXPREC
11529 065532                          40$:    CKLOOP                          ;LOOP IF SELECTED
      065532  104406                                                                TRAP    C$CLP1
11530 065534  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
11531 065540  013737  003114  073132          MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
11532
11533                                 ;*************************************************************************
11534                                 ;
11535                                 ;WRITE DATA,CVC=1,ACK COMMAND
11536                                 ;
11537                                 ;*************************************************************************
11538
11539 065546  012737  140005  073130          MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
11540 065554  012704  073130                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
11541 065560                          65$:
11542 065560  010337  073136                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
11543 065564  013777  073156  115322          MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
11544 065572  062737  000001  073156          ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
11545 065600  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
11546 065604  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
11547 065610  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
11548 065614  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
11549 065620  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
11550 065622  001406                          BEQ     75$                     ;BR, IF OK
11551 065624  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11555 065630                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
      065630  104456                                                                TRAP    C$ERHRD
      065632  001255                                                                .WORD   685
      065634  005111                                                                .WORD   WRTERR
      065636  012136                                                                .WORD   PKTSSR
11556 065640                          75$:    CKLOOP                          ;LOOP IF SELECTED
      065640  104406                                                                TRAP    C$CLP1
11557 065642  005723                          TST     (R3)+                   ;BUMP THE RECORD SIZE
11558 065644  022703  000414                  CMP     #268.,R3                ;MAXIMUM SIZE YET
11559 065650  001401                          BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
11560 065652  000742                          BR      65$                     ;WRITE MORE RECORDS
11561 065654                          120$:
11562 065654  005037  073156                  CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
```

```
                                        ;*****************************************************************
                                        ;
                                        ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                        ;
                                        ;*****************************************************************

065660  004737  011104                          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
065664  103411                                  BCS     130$                    ;BR, IF NO PROBLEM
065666  016501  000002                          MOV     TSSR(R5),R1             ;GET TSSR
065672  010004                                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
065674  005237  002212                          INC     FATFLG                  ;BUMP COUNT
065700                                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
065700  104456                                                                                  TRAP    C$ERHRD
065702  001256                                                                                  .WORD   686
065704  074464                                                                                  .WORD   T26RWN
065706  012136                                                                                  .WORD   PKTSSR
065710                                  130$:   CKLOOP                          ;LOOP IF SELECTED
065710  104406                                                                                  TRAP    C$CLP1

                                        ;*****************************************************************
                                        ;
                                        ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
                                        ;
                                        ;*****************************************************************

065712  013701  073030                          MOV     T26BFR+6,R1             ;PICK UP XSTO
065716  010102                                  MOV     R1,R2                   ;SET UP EXPECTED
065720  052702  000002                          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
065724  020102                                  CMP     R1,R2                   ;DOES EXP = REC'D
065726  001406                                  BEQ     135$                    ;BR, IF EQUAL (OK)
065730  005237  002212                          INC     FATFLG                  ;BUMP COUNT
065734                                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
065734  104456                                                                                  TRAP    C$ERHRD
065736  001257                                                                                  .WORD   687
065740  074175                                                                                  .WORD   T26BOT
065742  015564                                                                                  .WORD   EXPREC
065744                                  135$:   CKLOOP                                  ;LOOP IF SELECTED
065744  104406                                                                                  TRAP    C$CLP1
065746  012737  000400  073162                  MOV     #256.,T26RSZ            ;STARTING RECORD SIZE
065754  000420                                  BR      140$                    ;SKIP OVER THE SAPCE THIS TIME

                                        ;*****************************************************************
                                        ;
                                        ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
                                        ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
                                        ;
                                        ;*****************************************************************

065756  012703  000001                  132$:   MOV     #000001,R3              ;SET UP SPACE COMMAND (1 FORWARD)
065762  004737  010556                          JSR     PC,SPACE                ;CALL SPACE ROUTINE
065766  103413                                  BCS     140$                    ;BR, IF NO TROUBLE
065770  016501  000002                          MOV     TSSR(R5),R1             ;GET TSSR
065774  012702  000200                          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
066000  010004                                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
066002  005237  002212                          INC     FATFLG                  ;BUMP COUNT
066006                                          ERRHRD  ERRNO,T26SC,PKTSSR      ;SPACE (FORWARD) FAILED
```

TEST 6: REREADS

```
                066006  104456                                                          TRAP    C$ERHRD
                066010  001260                                                          .WORD   688
                066012  073577                                                          .WORD   T26SC
                066014  012136                                                          .WORD   PKTSSR
 11619          066016                  140$:   CKLOOP                  ;LOOP IF SELECTED
                066016  104406                                                          TRAP    C$CLP1
 11620          066020  013703  073162          MOV     T26RSZ,R3       ;RECORD SIZE
 11621          066024  013737  003114  073132  150$:   MOV     FREE,T26RB      ;STARTING READ BUFFER ADDRESS
 11622
 11623                          ;*************************************************************************
 11624                          ;
 11625                          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
 11626                          ;
 11627                          ;*************************************************************************
 11628
 11629          066032  012737  161401  073130          MOV     #161401,T26PK3  ;REREAD DATA,CVC=1,ACK, OPP COMMAND
 11630          066040  012704  073130  165$:   MOV     #T26PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
 11631          066044  010337  073136          MOV     R3,T26SZ        ;SET UP RECORD SIZE IN PACKET
 11632          066050  C10465  000000          MOV     R4,TSD8(R5)     ;ISSUE COMMAND
 11633          066054  004737  016340          JSR     PC,WAITF        ;WAIT FOR SSR TO SET
 11634          066060  016501  000002          MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
 11635          066064  012702  000200          MOV     #SSR,R2         ;SET UP EXPECTED
 11636          066070  020102                  CMP     R1,R2           ;ARE THEY EQUAL
 11637          066072  001406                  BEQ     170$            ;BR, IF OK
 11638          066074  005237  002212          INC     FATFLG          ;BUMP COUNT
 11642          066100                          ERRHRD  ERRNO,T26RRF,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
                066100  104456                                                          TRAP    C$ERHRD
                066102  001261                                                          .WORD   689
                066104  073405                                                          .WORD   T26RRF
                066106  012136                                                          .WORD   PKTSSR
 11643          066110                  170$:   CKLOOP                  ;LOOP IF SELECTED
                066110  104406                                                          TRAP    C$CLP1
 11644          066112  017701  114776          MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
 11645          066116  013702  073156          MOV     T26CNT,R2       ;SET UP EXPECTED
 11646          066122  020102                  CMP     R1,R2           ;IS TAPE POSITION CORRECT
 11647          066124  001406                  BEQ     190$            ;KEEP GOING POSITION OK
 11648          066126  005237  002212          INC     FATFLG          ;BUMP COUNT
 11652          066132                          ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
                066132  104456                                                          TRAP    C$ERHRD
                066134  001262                                                          .WORD   690
                066136  073166                                                          .WORD   T26WNG
                066140  015564                                                          .WORD   EXPREC
 11653          066142  104406  190$:   CKLOOP                                        TRAP    C$CLP1
 11654          066144  062737  000001  073156          ADD     #1,T26CNT       ;BUMP TAPE RECORD COUNTER
 11655          066152  005723                  TST     (R3)+           ;NEXT RECORD SIZE
 11656          066154  010337  073162          MOV     R3,T26RSZ       ;STORE RECORD SIZE
 11657          066160  022703  000412          CMP     #266.,R3        ;AT MAX SIZE YET
 11658          066164  001402                  BEQ     200$            ;BR, IF AT END OF THE SUBTEST
 11659          066166  000137  065756          JMP     132$            ;KEEP GOING MORE RECORDS
 11660          066172                  200$:
 11661          066172                          ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
                066172                                                          L10113:
                066172  104403                                                          TRAP    C$ESUB
 11662          066174  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
 11663          066202  103402                  BLO     999$                    ;BR, IF LESS THAN 25
 11664          066204  004737  017272          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
```

```
066210                                  999$:

                                        ;+
                                        ;
                                        ;TEST 6, SUBTEST 10
                                        ;
                                        ;VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=1
                                        ;AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
                                        ;THE SAME THAT IS USED IN SUBTEST 3, BUT IT IS
                                        ;VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
                                        ;SWAPPED BYTES.
                                        ;
                                        ;
                                        ;
                                        ;
                                        ;-

066210                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
066210                                                                                  T6.10:
066210  104402                                                                                  TRAP    C$BSUB
066212  004737  075720                          JSR     PC,T26REST              ;SET COMMAND PACKET
066216  005037  073156                          CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
066222  004737  076012                          JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
066226  004737  076054                          JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

                                        ;*******************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*******************************************************************

066232  004737  016064                          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
066236  103407                                  BCS     20$                     ;BR IF INIT WAS OK
066240  005237  002212                          INC     FATFLG                  ;BUMP COUNT
066244  010001                                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
066246                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
066246  104455                                                                                  TRAP    C$ERDF
066250  001263                                                                                  .WORD   691
066252  003650                                                                                  .WORD   SFIERR
066254  012124                                                                                  .WORD   SFIMSG
066256  013737  002172  073020  20$:            MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER

066264  012704  073000                          MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*******************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*******************************************************************

066270  004737  010752                          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
066274  103407                                  BCS     26$                     ;BR, IF COMMAND ISSUED OK
066276  005237  002212                          INC     FATFLG                  ;BUMP COUNT
066302  010001                                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
066304                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
066304  104456                                                                                  TRAP    C$ERHRD
066306  001264                                                                                  .WORD   692
```

TEST 6: REREADS

```
                066310  005054                                                          .WORD   WRTMSG
                066312  012124                                                          .WORD   SFIMSG
 11720          066314                  26$:    CKLOOP                  ;LOOP IF SELECTED
                066314  104406                                                          TRAP    C$CLP1
 11721
 11722                                  ;*************************************************************************
 11723                                  ;
 11724                                  ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 11725                                  ;
 11726                                  ;*************************************************************************
 11727
 11728  066316  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 11729  066322  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
 11730  066326  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
 11731  066332  103407                          BCS     30$                     ;BR, IF NO PROBLEM
 11732  066334  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
 11733  066336  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 11737  066342                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
                066342  104456                                                          TRAP    C$ERHRD
                066344  001265                                                          .WORD   693
                066346  074464                                                          .WORD   T26RWN
                066350  012136                                                          .WORD   PKTSSR
 11738          066352                  30$:    CKLOOP                  ;LOOP IF SELECTED
                066352  104406                                                          TRAP    C$CLP1
 11739
 11740                                  ;*************************************************************************
 11741                                  ;
 11742                                  ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 11743                                  ;
 11744                                  ;*************************************************************************
 11745
 11746  066354  013701  073030                  MOV     T26BFR+6,R1             ;PICK UP XST0
 11747  066360  010102                          MOV     R1,R2                   ;SET UP EXPECTED
 11748  066362  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 11749  066366  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
 11750  066370  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
 11751  066372  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 11755  066376                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                066376  104456                                                          TRAP    C$ERHRD
                066400  001266                                                          .WORD   694
                066402  074175                                                          .WORD   T26BOT
                066404  015564                                                          .WORD   EXPREC
 11756          066406          40$:    CKLOOP                  ;LOOP IF SELECTED
                066406  104406                                                          TRAP    C$CLP1
 11757  066410  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
 11758  066414  013737  003114  073132          MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
 11759
 11760                                  ;*************************************************************************
 11761                                  ;
 11762                                  ;WRITE DATA,CVC=1,ACK COMMAND
 11763                                  ;
 11764                                  ;*************************************************************************
 11765
 11766  066422  012737  140005  073130          MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
 11767  066430  012704  073130                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 11768  066434                          65$:
 11769  066434  010337  073136                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
```

TEST 6: REREADS

```
11770 066440  013777  073156  114446          MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
11771 066446  062737  000001  073156          ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
11772 066454  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
11773 066460  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
11774 066464  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
11775 066470  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
11776 066474  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
11777 066476  001406                          BEQ     75$                     ;BR, IF OK
11778 066500  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11782 066504                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      066504  104456                                                                  TRAP    C$ERHRD
      066506  001267                                                                  .WORD   695
      066510  005111                                                                  .WORD   WRTERR
      066512  012136                                                                  .WORD   PKTSSR
11783 066514                          75$:    CKLOOP                          ;LOOP IF SELECTED
      066514  104406                                                                  TRAP    C$CLP1
11784 066516  005723                          TST     (R3)+                   ;BUMP THE RECORD SIZE
11785 066520  022703  000414                  CMP     #268.,R3                ;MAXIMUM SIZE YET
11786 066524  C01401                          BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
11787 066526  000742                          BR      65$                     ;WRITE MORE RECORDS
11788 066530                          120$:
11789 066530  005037  073156                  CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
11790
11791                                 ;*************************************************************************
11792                                 ;
11793                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
11794                                 ;
11795                                 ;*************************************************************************
11796
11797 066534  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
11798 066540  103411                          BCS     130$                    ;BR, IF NO PROBLEM
11799 066542  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
11800 066546  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
11801 066550  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11805 066554                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      066554  104456                                                                  TRAP    C$ERHRD
      066556  001270                                                                  .WORD   696
      066560  074464                                                                  .WORD   T26RWN
      066562  012136                                                                  .WORD   PKTSSR
11806 066564                          130$:   CKLOOP                          ;LOOP IF SELECTED
      066564  104406                                                                  TRAP    C$CLP1
11807
11808                                 ;*************************************************************************
11809                                 ;
11810                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
11811                                 ;
11812                                 ;*************************************************************************
11813
11814 066566  013701  073030                  MOV     T26BFR+6,R1             ;PICK UP XSTO
11815 066572  010102                          MOV     R1,R2                   ;SET UP EXPECTED
11816 066574  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
11817 066600  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
11818 066602  001406                          BEQ     135$                    ;BR, IF EQUAL (OK)
11819 066604  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11823 066610                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      066610  104456                                                                  TRAP    C$ERHRD
      066612  001271                                                                  .WORD   697
```

TEST 6: REREADS

```
        066614  074175                                                          .WORD   T26BOT
        066616  015564                                                          .WORD   EXPREC
 11824  066620                          135$:   CKLOOP                                  ;LOOP IF SELECTED
        066620  104406                                                          TRAP    C$CLP1
 11825  066622  012737  000400  073162          MOV     #256.,T26RSZ            ;START RECORD SIZE
 11826  066630  000420                          BR      140$                    ;SKIP OVER SPACE
 11827
 11828                          ;*************************************************************************
 11829                          ;
 11830                          ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
 11831                          ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
 11832                          ;
 11833                          ;*************************************************************************
 11834
 11835  066632  012703  000001          136$:   MOV     #000001,R3              ;SET UP SPACE COMMAND (1 FORWARD)
 11836  066636  004737  010556                  JSR     PC,SPACE                ;CALL SPACE ROUTINE
 11837  066642  103413                          BCS     140$                    ;BR, IF NO TROUBLE
 11838  066644  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
 11839  066650  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
 11840  066654  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
 11841  066656  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 11845  066662                                  ERRHRD  ERRNO,T26SC,PKTSSR      ;SPACE (FORWARD) FAILED
        066662  104456                                                          TRAP    C$ERHRD
        066664  001272                                                          .WORD   698
        066666  073577                                                          .WORD   T26SC
        066670  012136                                                          .WORD   PKTSSR
 11846  066672                          140$:   CKLOOP                          ;LOOP IF SELECTED
        066672  104406                                                          TRAP    C$CLP1
 11847  066674  013703  073162                  MOV     T26RSZ,R3               ;RECORD SIZE
 11848  066700  013737  003114  073132  150$:   MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
 11849
 11850                          ;*************************************************************************
 11851                          ;
 11852                          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
 11853                          ;
 11854                          ;*************************************************************************
 11855
 11856  066706  012737  161401  073130          MOV     #161401,T26PK3          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
 11857  066714  012704  073130          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 11858  066720  010337  073136                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
 11859  066724  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 11860  066730  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 11861  066734  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 11862  066740  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 11863  066744  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 11864  066746  001406                          BEQ     170$                    ;BR, IF OK
 11865  066750  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 11869  066754                                  ERRHRD  ERRNO,T26RRF,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
        066754  104456                                                          TRAP    C$ERHRD
        066756  001273                                                          .WORD   699
        066760  073405                                                          .WORD   T26RRF
        066762  012136                                                          .WORD   PKTSSR
 11870  066764                          170$:   CKLOOP                          ;LOOP IF SELECTED
        066764  104406                                                          TRAP    C$CLP1
 11871  066766  017701  114122                  MOV     @FREE,R1                        ;FIRST WORD FROM READ BUFFER
 11872  066772  013702  073156                  MOV     T26CNT,R2               ;SET UP EXPECTED
 11873  066776  020102                          CMP     R1,R2                   ;IS TAPE POSITION CORRECT
```

TEST 6: REREADS

```
11874 067000  001406                    BEQ     190$                    ;KEEP GOING POSITION OK
11875 067002  005237  002212            INC     FATFLG                  ;BUMP COUNT
11879 067006                            ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
      067006  104456                                                            TRAP    C$ERHRD
      067010  001274                                                            .WORD   700
      067012  073166                                                            .WORD   T26WNG
      067014  015564                                                            .WORD   EXPREC
11880 067016                    190$:   CKLOOP                                  TRAP    C$CLP1
      067016  104406
11881 067020  062737  000001  073156    ADD     #1,T26CNT               ;BUMP TAPE RECORD COUNTER
11882 067026  005723                    TST     (R3)+                   ;NEXT RECORD SIZE
11883 067030  010337  073162            MOV     R3,T26RSZ               ;STORE RECORD SIZE
11884 067034  022703  000412            CMP     #266.,R3                ;AT MAX SIZE YET
11885 067040  001402                    BEQ     220$                    ;BR, IF AT END OF THE SUBTEST
11886 067042  000137  066632            JMP     136$                    ;KEEP GOING MORE RECORDS
11887 067046                    220$:
11888 067046                    ENDSUB                                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      067046                                                                    L10114:
      067046  104403                                                            TRAP    C$ESUB
11889 067050  023727  002212  000017    CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
11890 067056  103402                    BLO     999$                            ;BR, IF LESS THAN 25
11891 067060  004737  017272            JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
11892 067064                    999$:
11893
11894                           ;+
11895                           ;
11896                           ;TEST 6, SUBTEST 11
11897                           ;
11898                           ;VERIFIES THAT A REREAD NEXT COMMAND READING A
11899                           ;RECORD LONGER THAN THE SPECIFIED BYTE COUNT CAUSES
11900                           ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
11901                           ;LONG (RLL) BIT SET. RESULTS ARE VERIFIED FOR BOTH
11902                           ;STATES OF OPP (0 AND 1).
11903                           ;
11904                           ;
11905                           ;
11906                           ;-
11907
11908
11909 067064                            BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      067064                                                                    T6.11:
      067064  104402                                                            TRAP    C$BSUB
11910 067066  004737  075720            JSR     PC,T26REST              ;SET COMMAND PACKET
11911 067072  004737  076012            JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
11912 067076  004737  076054            JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
11913
11914                           ;*************************************************************************
11915                           ;
11916                           ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
11917                           ;
11918                           ;*************************************************************************
11919
11920 067102  004737  016064            JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
11921 067106  103407                    BCS     20$                     ;BR IF INIT WAS OK
11922 067110  005237  002212            INC     FATFLG                  ;BUMP COUNT
11926 067114  010001                    MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
11927 067116                            ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
```

TEST 6: REREADS

```
                067116  104455                                                          TRAP    C$ERDF
                067120  001275                                                          .WORD   701
                067122  003650                                                          .WORD   SFIERR
                067124  012124                                                          .WORD   SFIMSG
 11928          067126  013737  002172  073020  20$:    MOV     UNITN,T26DSW           ;SET UP UNIT NUMBER
 11929
 11930          067134  012704  073000          MOV     #T26PACKET,R4                  ;SUBROUTINE NEEDS PACKET ADDRESS
 11931
 11932                                          ;*************************************************************************
 11933                                          ;
 11934                                          ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 11935                                          ;
 11936                                          ;*************************************************************************
 11937
 11938          067140  004737  010752          JSR     PC,WRTCHR                      ;ISSUE WRITE CHARACTERISTICS
 11939          067144  103407                  BCS     26$                            ;BR, IF COMMAND ISSUED OK
 11940          067146  005237  002212          INC     FATFLG                         ;BUMP COUNT
 11944          067152  010001                  MOV     R0,R1                          ;SAVE CONTENTS OF TSSR
 11945          067154                          ERRHRD  ERRNO,WRTMSG,SFIMSG            ;WRITE CHARACTERISTISC FAILED
                067154  104456                                                          TRAP    C$ERHRD
                067156  001276                                                          .WORD   702
                067160  005054                                                          .WORD   WRTMSG
                067162  012124                                                          .WORD   SFIMSG
 11946          067164                  26$:    CKLOOP                                 ;LOOP IF SELECTED
                067164  104406                                                          TRAP    C$CLP1
 11947
 11948                                          ;*************************************************************************
 11949                                          ;
 11950                                          ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 11951                                          ;
 11952                                          ;*************************************************************************
 11953
 11954          067166  004737  011104          JSR     PC,REWIND                      ;CALL TAPE REWIND COMMAND
 11955          067172  016501  000002          MOV     TSSR(R5),R1                    ;GET TSSR
 11956          067176  012702  000200          MOV     #SSR,R2                        ;SET UP EXPECTED TSSR
 11957          067202  103407                  BCS     30$                            ;BR, IF NO PROBLEM
 11958          067204  010004                  MOV     R0,R4                          ;PACKET ADDRESS SET UP
 11959          067206  005237  002212          INC     FATFLG                         ;BUMP COUNT
 11963          067212                          ERRHRD  ERRNO,T26RWN,PKTSSR            ;REWIND NOT ACCEPTED
                067212  104456                                                          TRAP    C$ERHRD
                067214  001277                                                          .WORD   703
                067216  074464                                                          .WORD   T26RWN
                067220  012136                                                          .WORD   PKTSSR
 11964          067222                  30$:    CKLOOP                                 ;LOOP IF SELECTED
                067222  104406                                                          TRAP    C$CLP1
 11965
 11966                                          ;*************************************************************************
 11967                                          ;
 11968                                          ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 11969                                          ;
 11970                                          ;*************************************************************************
 11971
 11972          067224  013701  073030          MOV     T26BFR+6,R1                    ;PICK UP XST0
 11973          067230  010102                  MOV     R1,R2                          ;SET UP EXPECTED
 11974          067232  052702  000002          BIS     #BIT1,R2                       ;SET BOT BIT IN EXPECTED
 11975          067236  020102                  CMP     R1,R2                          ;DOES EXP = REC'D
 11976          067240  001406                  BEQ     40$                            ;BR, IF EQUAL (OK)
```

TEST 6: REREADS

```
11977 067242  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11981 067246                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      067246  104456                                                          TRAP    C$ERHRD
      067250  001300                                                          .WORD   704
      067252  074175                                                          .WORD   T26BOT
      067254  015564                                                          .WORD   EXPREC
11982 067256                          40$:    CKLOOP                          ;LOOP IF SELECTED
      067256  104406                                                          TRAP    C$CLP1
11983 067260  012703  001000                  MOV     #512.,R3                ;RECORD SIZE
11984 067264  013737  003114  073132          MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
11985
11986                                 ;*************************************************************************
11987                                 ;
11988                                 ;WRITE DATA,CVC=1,ACK COMMAND
11989                                 ;
11990                                 ;*************************************************************************
11991
11992 067272  012737  140005  073130          MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
11993 067300  012704  073130                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
11994 067304                          65$:
11995 067304  010337  073136                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
11996 067310  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
11997 067314  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
11998 067320  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
11999 067324  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
12000 067330  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
12001 067332  001406                          BEQ     75$                     ;BR. IF OK
12002 067334  005237  002212                  INC     FATFLG                  ;BUMP COUNT
12006 067340                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      067340  104456                                                          TRAP    C$ERHRD
      067342  001301                                                          .WORD   705
      067344  005111                                                          .WORD   WRTERR
      067346  012136                                                          .WORD   PKTSSR
12007 067350                          75$:    CKLOOP                          ;LOOP IF SELECTED
      067350  104406                                                          TRAP    C$CLP1
12008
12009                                 ;*************************************************************************
12010                                 ;
12011                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
12012                                 ;
12013                                 ;*************************************************************************
12014
12015 067352  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
12016 067356  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
12017 067362  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
12018 067366  103407                          BCS     130$                    ;BR. IF NO PROBLEM
12019 067370  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
12020 067372  005237  0u2212                  INC     FATFLG                  ;BUMP COUNT
12024 067376                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      067376  104456                                                          TRAP    C$ERHRD
      067400  001302                                                          .WORD   706
      067402  074464                                                          .WORD   T26RWN
      067404  012136                                                          .WORD   PKTSSR
12025 067406                          130$:   CKLOOP                          ;LOOP IF SELECTED
      067406  104406                                                          TRAP    C$CLP1
12026
12027                                 ;*************************************************************************
```

TEST 6: REREADS

```
12028                                   ;
12029                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
12030                                   ;
12031                                   ;*************************************************************************
12032
12033 067410  013701  073030                      MOV     T26BFR+6,R1             ;PICK UP XSTO
12034 067414  010102                      MOV     R1,R2                   ;SET UP EXPECTED
12035 067416  052702  000002                      BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
12036 067422  020102                      CMP     R1,R2                   ;DOES EXP = REC'D
12037 067424  001406                      BEQ     140$                    ;BR. IF EQUAL (OK)
12038 067426  005237  002212                      INC     FATFLG                  ;BUMP COUNT
12042 067432                              ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      067432  104456                                                              TRAP    C$ERHRD
      067434  001303                                                              .WORD   707
      067436  074175                                                              .WORD   T26BOT
      067440  015564                                                              .WORD   EXPREC
12043 067442                          140$:   CKLOOP                          ;LOOP IF SELECTED
      067442  104406                                                              TRAP    C$CLP1
12044 067444  C05303                      DEC     R3                      ;SET RECORD SIZE TO 511.
12045 067446  013737  003114  073132          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
12046
12047                                   ;*************************************************************************
12048                                   ;
12049                                   ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
12050                                   ;
12051                                   ;*************************************************************************
12052
12053 067454  012737  161401  073130          MOV     #161401,T26PK3          ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
12054 067462  012704  073130      165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
12055 067466  010337  073136                      MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
12056 067472  010465  000000                      MOV     R4,TSDB(R5)             ;ISSUE COMMAND
12057 067476  004737  016340                      JSR     PC,WAITF                ;WAIT FOR SSR TO SET
12058 067502  016501  000002                      MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
12059 067506  012702  100204                      MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
12060 067512  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
12061 067514  001406                      BEQ     170$                    ;BR. IF OK
12062 067516  005237  002212                      INC     FATFLG                  ;BUMP COUNT
12066 067522                              ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
      067522  104456                                                              TRAP    C$ERHRD
      067524  001304                                                              .WORD   708
      067526  075542                                                              .WORD   T26TRL
      067530  012136                                                              .WORD   PKTSSR
12067 067532                          170$:   CKLOOP                          ;LOOP IF SELECTED
      067532  104406                                                              TRAP    C$CLP1
12068
12069                                   ;*************************************************************************
12070                                   ;
12071                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
12072                                   ;
12073                                   ;*************************************************************************
12074
12075 067534  013701  073030                      MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
12076 067540  010102                      MOV     R1,R2                   ;SET UP EXPECTED
12077 067542  052702  010000                      BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
12078 067546  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
12079 067550  001406                      BEQ     180$                    ;BR. IF EQUAL (ALL IS WELL)
12080 067552  005237  002212                      INC     FATFLG                  ;BUMP COUNT
```

TEST 6: REREADS

```
12084 067556                          ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XSTO
      067556 104456                                                                 TRAP    C$ERHRD
      067560 001305                                                                 .WORD   709
      067562 075310                                                                 .WORD   T26LON
      067564 015564                                                                 .WORD   EXPREC
12085 067566                    180$:   CKLOOP                                      TRAP    C$CLP1
      067566 104406
12086 067570 012703 000777              MOV     #511.,R3                ;SET UP SIZE OF RECORD
12087 067574 013737 003114 073132       MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
12088
12089                           ;*************************************************************************
12090                           ;
12091                           ;REREAD DATA,CVC=1,ACK COMMAND
12092                           ;
12093                           ;*************************************************************************
12094
12095 067602 012737 141401 073130       MOV     #141401,T26PK3          ;REREAD DATA,CVC=1,ACK COMMAND
12096 067610 012704 073130      365$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
12097 067614 C10337 073136              MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
12098 067620 010465 000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
12099 067624 004737 016340              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
12100 067630 016501 000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
12101 067634 012702 100204              MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
12102 067640 020102                     CMP     R1,R2                   ;ARE THEY EQUAL
12103 067642 001406                     BEQ     370$                    ;BR, IF OK
12104 067644 005237 002212              INC     FATFLG                  ;BUMP COUNT
12108 067650                            ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
      067650 104456                                                                 TRAP    C$ERHRD
      067652 001306                                                                 .WORD   710
      067654 075542                                                                 .WORD   T26TRL
      067656 012136                                                                 .WORD   PKTSSR
12109 067660                    370$:   CKLOOP                          ;LOOP IF SELECTED
      067660 104406                                                                 TRAP    C$CLP1
12110
12111                           ;*************************************************************************
12112                           ;
12113                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
12114                           ;
12115                           ;*************************************************************************
12116
12117 067662 013701 073030              MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
12118 067666 010102                     MOV     R1,R2                   ;SET UP EXPECTED
12119 067670 052702 010000              BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
12120 067674 020102                     CMP     R1,R2                   ;ARE THEY EQUAL
12121 067676 001406                     BEQ     380$                    ;BR, IF EQUAL (ALL IS WELL)
12122 067700 005237 002212              INC     FATFLG                  ;BUMP COUNT
12126 067704                            ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XSTO
      067704 104456                                                                 TRAP    C$ERHRD
      067706 001307                                                                 .WORD   711
      067710 075310                                                                 .WORD   T26LON
      067712 015564                                                                 .WORD   EXPREC
12127 067714                    380$:   CKLOOP                                      TRAP    C$CLP1
      067714 104406
12128 067716                            ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
      067716                                                                        L10115:
      067716 104403                                                                 TRAP    C$ESUB
12129 067720 023727 002212 000017       CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
```

TEST 6: REREADS

```
12130 067726  103402                    BLO     999$                    ;BR, IF LESS THAN 25
12131 067730  004737  017272            JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
12132 067734                          999$:
12133
12134                                 ;*
12135                                 ;
12136                                 ;TEST 6, SUBTEST 12
12137                                 ;
12138                                 ;VERIFIES THAT A REREAD NEXT COMMAND READING A
12139                                 ;RECORD SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES
12140                                 ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
12141                                 ;SHORT (RLS) BIT SET. IT IS VERIFIED THAT THE
12142                                 ;RESIDUAL BYTE COUNTER (RBPCR) IN THE MESSAGE BUFFER
12143                                 ;CONTAINS THE PROPER NONZERO VALUE (E.G., THE
12144                                 ;DIFFERENCE BETWEEN THE ORIGINAL BYTE COUNT AND THE
12145                                 ;ACTUAL RECORD LENGTH). RESULTS ARE VERIFIED FOR BOTH
12146                                 ;STATES OF OPP (0 AND 1).
12147                                 ;
12148                                 ;
12149                                 ;
12150                                 ;-
12151 067734                          BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
       067734                                                                   T6.12:
       067734  104402                                                            TRAP    C$BSUB
12152 067736  004737  075720            JSR     PC,T26REST              ;SET COMMAND PACKET
12153 067742  004737  076012            JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
12154 067746  004737  076054            JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
12155
12156                                 ;*****************************************************************
12157                                 ;
12158                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
12159                                 ;
12160                                 ;*****************************************************************
12161
12162 067752  004737  016064            JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
12163 067756  103407                    BCS     20$                     ;BR IF INIT WAS OK
12164 067760  005237  002212            INC     FATFLG                  ;BUMP COUNT
12168 067764  010001                    MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
12169 067766                            ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
       067766  104455                                                           TRAP    C$ERDF
       067770  001310                                                           .WORD   712
       067772  003650                                                           .WORD   SFIERR
       067774  012124                                                           .WORD   SFIMSG
12170 067776  013737  002172  073020  20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
12171
12172 070004  012704  073000            MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
12173
12174                                 ;*****************************************************************
12175                                 ;
12176                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
12177                                 ;
12178                                 ;*****************************************************************
12179
12180 070010  004737  010752            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
12181 070014  103407                    BCS     26$                     ;BR, IF COMMAND ISSUED OK
12182 070016  005237  002212            INC     FATFLG                  ;BUMP COUNT
12186 070022  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
```

```
TEST  6: REREADS

12187 070024                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      070024  104456                                                          TRAP    C$ERHRD
      070026  001311                                                          .WORD   713
      070030  005054                                                          .WORD   WRTMSG
      070032  012124                                                          .WORD   SFIMSG
12188 070034                    26$:  CKLOOP                          ;LOOP IF SELECTED
      070034  104406                                                          TRAP    C$CLP1
12189
12190                           ;*************************************************************************
12191                           ;
12192                           ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
12193                           ;
12194                           ;*************************************************************************
12195
12196 070036  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
12197 070042  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR
12198 070046  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
12199 070052  103407                    BCS     30$                     ;BR, IF NO PROBLEM
12200 070054  C10004                    MOV     R0,R4                   ;PACKET ADDRESS SET UP
12201 070056  005237  002212            INC     FATFLG                  ;BUMP COUNT
12205 070062                            ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      070062  104456                                                          TRAP    C$ERHRD
      070064  001312                                                          .WORD   714
      070066  074464                                                          .WORD   T26RWN
      070070  012136                                                          .WORD   PKTSSR
12206 070072                    30$:  CKLOOP                          ;LOOP IF SELECTED
      070072  104406                                                          TRAP    C$CLP1
12207
12208                           ;*************************************************************************
12209                           ;
12210                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
12211                           ;
12212                           ;*************************************************************************
12213
12214 070074  013701  073030            MOV     T26BFR+6,R1             ;PICK UP XSTO
12215 070100  010102                    MOV     R1,R2                   ;SET UP EXPECTED
12216 070102  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
12217 070106  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
12218 070110  001406                    BEQ     40$                     ;BR, IF EQUAL (OK)
12219 070112  005237  002212            INC     FATFLG                  ;BUMP COUNT
12223 070116                            ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      070116  104456                                                          TRAP    C$ERHRD
      070120  001313                                                          .WORD   715
      070122  074175                                                          .WORD   T26BOT
      070124  015564                                                          .WORD   EXPREC
12224 070126                    40$:  CKLOOP                          ;LOOP IF SELECTED
      070126  104406                                                          TRAP    C$CLP1
12225 070130  012703  000400            MOV     #256.,R3                ;RECORD SIZE
12226 070134  013737  003114  073132    MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
12227
12228                           ;*************************************************************************
12229                           ;
12230                           ;WRITE DATA,CVC=1,ACK COMMAND
12231                           ;
12232                           ;*************************************************************************
12233
12234 070142  012737  140005  073130    MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
```

```
TEST  6: REREADS

12235 070150  012704  073130          MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
12236 070154                    65$:
12237 070154  010337  073136          MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
12238 070160  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
12239 070164  004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
12240 070170  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
12241 070174  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED
12242 070200  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
12243 070202  001406                  BEQ     75$                     ;BR, IF OK
12244 070204  005237  002212          INC     FATFLG                  ;BUMP COUNT
12248 070210                          ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      070210  104456                                                                  TRAP    C$ERHRD
      070212  001314                                                                  .WORD   716
      070214  005111                                                                  .WORD   WRTERR
      070216  012136                                                                  .WORD   PKTSSR
12249 070220                    75$:  CKLOOP                          ;LOOP IF SELECTED
      070220  104406                                                                  TRAP    C$CLP1
12250 070222                    120$:
12251
12252                           ;*************************************************************************
12253                           ;
12254                           ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
12255                           ;
12256                           ;*************************************************************************
12257
12258 070222  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
12259 070226  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR
12260 070232  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
12261 070236  103407                  BCS     130$                    ;BR, IF NO PROBLEM
12262 070240  010004                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
12263 070242  005237  002212          INC     FATFLG                  ;BUMP COUNT
12267 070246                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      070246  104456                                                                  TRAP    C$ERHRD
      070250  001315                                                                  .WORD   717
      070252  074464                                                                  .WORD   T26RWN
      070254  012136                                                                  .WORD   PKTSSR
12268 070256                    130$: CKLOOP                          ;LOOP IF SELECTED
      070256  104406                                                                  TRAP    C$CLP1
12269
12270                           ;*************************************************************************
12271                           ;
12272                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
12273                           ;
12274                           ;*************************************************************************
12275
12276 070260  013701  073030          MOV     T26BFR+6,R1             ;PICK UP XST0
12277 070264  010102                  MOV     R1,R2                   ;SET UP EXPECTED
12278 070266  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
12279 070272  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
12280 070274  001406                  BEQ     135$                    ;BR, IF EQUAL (OK)
12281 070276  005237  002212          INC     FATFLG                  ;BUMP COUNT
12285 070302                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      070302  104456                                                                  TRAP    C$ERHRD
      070304  001316                                                                  .WORD   718
      070306  074175                                                                  .WORD   T26BOT
      070310  015564                                                                  .WORD   EXPREC
12286 070312                    135$: CKLOOP                                ;LOOP IF SELECTED
```

```
TEST  6: REREADS

        070312  104406                                                          TRAP    C$CLP1
 12287  070314  012703  001000                MOV     #512.,R3                ;RECORD SIZE
 12288  070320  013737  003114  073132        MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
 12289
 12290                                ;*************************************************************************
 12291                                ;
 12292                                ;REREAD NEXT,ACK,CVC=1,OPP=1
 12293                                ;
 12294                                ;*************************************************************************
 12295
 12296  070326  012737  161401  073130        MOV     #161401,T26PK3          ;REREAD NEXT,ACK,CVC=1,OPP=1
 12297  070334  012704  073130        165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 12298  070340  010337  073136                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
 12299  070344  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 12300  070350  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 12301  070354  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 12302  070360  012702  100204                MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
 12303  070364  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
 12304  070366  001406                        BEQ     170$                    ;BR, IF OK
 12305  070370  005237  002212                INC     FATFLG                  ;BUMP COUNT
 12309  070374                                ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
        070374  104456                                                          TRAP    C$ERHRD
        070376  001317                                                          .WORD   719
        070400  075542                                                          .WORD   T26TRL
        070402  012136                                                          .WORD   PKTSSR
 12310  070404                        170$:   CKLOOP                          ;LOOP IF SELECTED
        070404  104406                                                          TRAP    C$CLP1
 12311
 12312                                ;*************************************************************************
 12313                                ;
 12314                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 12315                                ;
 12316                                ;*************************************************************************
 12317
 12318  070406  013701  073030                MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
 12319  070412  010102                        MOV     R1,R2                   ;SET UP EXPECTED
 12320  070414  052702  040000                BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
 12321  070420  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
 12322  070422  001406                        BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
 12323  070424  005237  002212                INC     FATFLG                  ;BUMP COUNT
 12327  070430                                ERRHRD  ERRNO,T26LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
        070430  104456                                                          TRAP    C$ERHRD
        070432  001320                                                          .WORD   720
        070434  075372                                                          .WORD   T26LOP
        070436  015564                                                          .WORD   EXPREC
 12328  070440                        180$:   CKLOOP
        070440  104406                                                          TRAP    C$CLP1
 12329  070442  013701  073026                MOV     T26BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
 12330  070446  012702  000400                MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
 12331  070452  020102                        CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
 12332  070454  001405                        BEQ     190$                    ;BR, IF CORRECT
 12336  070460                                ERRHRD  ERRNO,T26PBP,EXPREC     ;RBPCR NOT CORRECT
        070460  104456                                                          TRAP    C$ERHRD
        070462  001320                                                          .WORD   720
        070464  075454                                                          .WORD   T26PBP
        070466  015564                                                          .WORD   EXPREC
 12337  070470                        190$:   CKLOOP                          ;LOOP IF SELECTED
```

TEST 6: REREADS

```
                070470  104406                                                          TRAP    C$CLP1
12338           070472  012703  001000                  MOV     #512.,R3                ;RECORD SIZE
12339           070476  013737  003114  073132          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
12340
12341                                   ;*************************************************************************
12342                                   ;
12343                                   ;REREAD NEXT,ACK,CVC=1,OPP=0
12344                                   ;
12345                                   ;*************************************************************************
12346
12347           070504  012737  141401  073130          MOV     #141401,T26PK3          ;REREAD NEXT,ACK,CVC=1,OPP=0
12348           070512  012704  073130                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
12349           070516  010337  073136                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
12350           070522  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
12351           070526  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
12352           070532  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
12353           070536  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
12354           070542  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
12355           070544  001406                          BEQ     270$                    ;BR, IF OK
12356           070546  005237  002212                  INC     FATFLG                  ;BUMP COUNT
12360           070552                                  ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
                070552  104456                                                          TRAP    C$ERHRD
                070554  001321                                                          .WORD   721
                070556  075542                                                          .WORD   T26TRL
                070560  012136                                                          .WORD   PKTSSR
12361           070562                  270$:   CKLOOP                                  ;LOOP IF SELECTED
                070562  104406                                                          TRAP    C$CLP1
12362
12363                                   ;*************************************************************************
12364                                   ;
12365                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
12366                                   ;
12367                                   ;*************************************************************************
12368
12369           070564  013701  073030                  MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
12370           070570  010102                          MOV     R1,R2                   ;SET UP EXPECTED
12371           070572  052702  040000                  BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
12372           070576  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
12373           070600  001406                          BEQ     280$                    ;BR, IF EQUAL (ALL IS WELL)
12374           070602  005237  002212                  INC     FATFLG                  ;BUMP COUNT
12378           070606                                  ERRHRD  ERRNO,T26LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XSTO
                070606  104456                                                          TRAP    C$ERHRD
                070610  001322                                                          .WORD   722
                070612  075372                                                          .WORD   T26LOP
                070614  015564                                                          .WORD   EXPREC
12379           070616                  280$:   CKLOOP
                070616  104406                                                          TRAP    C$CLP1
12380           070620  013701  0/3026                  MOV     T26BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
12381           070624  012702  000400                  MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
12382           070630  020102                          CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
12383           070632  001405                          BEQ     290$                    ;BR, IF CORRECT
12387           070636                                  ERRHRD  ERRNO,T26PBP,EXPREC     ;RBPCR NOT CORRECT
                070636  104456                                                          TRAP    C$ERHRD
                070640  001322                                                          .WORD   722
                070642  075454                                                          .WORD   T26PBP
                070644  015564                                                          .WORD   EXPREC
12388           070646                  290$:   CKLOOP                                  ;LOOP IF SELECTED
```

```
TEST  6: REREADS

        070646  104406                                                          TRAP    C$CLP1
 12389  070650                          ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
        070650                                                                  L10116:
        070650  104403                                                          TRAP    C$ESUB
 12390  070652  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
 12391  070660  103402                          BLO     999$                    ;BR, IF LESS THAN 25
 12392  070662  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
 12393  070666                  999$:
 12394
 12395                          ;+
 12396                          ;
 12397                          ;TEST 6, SUBTEST 13
 12398                          ;
 12399                          ;VERIFIES THAT A DATA BUFFER ADDRESS REFERENCING
 12400                          ;NONEXISTENT MEMORY CAUSES RECOVERABLE ERROR
 12401                          ;TERMINATION (TC=4 OR 5) WITH NXM=1 AND THAT THE TAPE
 12402                          ;IS ULTIMATELY POSITIONED PROPERLY. ALL COMBINATIONS
 12403                          ;OF REREAD PREVIOUS/NEXT AND OPP=0/1 ARE TESTED.
 12404                          ;-
 12405
 12406  070666                          BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
        070666                                                                  T6.13:
        070666  104402                                                          TRAP    C$BSUB
 12407  070670  005737  003126                  TST     NXMFLG                  ;DO WE HAVE IT?
 12408  070674  001002                          BNE     10$                     ;BR, IF  ENOUGH
 12409  070676  000137  071700                  JMP     200$                    ;SKIP THIS TEST IF NOT
 12410  070702  004737  075720          10$:    JSR     PC,T26REST              ;SET COMMAND PACKET
 12411  070706  005037  073156                  CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
 12412  070712  004737  076012                  JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
 12413  070716  004737  076054                  JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
 12414
 12415                          ;*****************************************************************************
 12416                          ;
 12417                          ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
 12418                          ;
 12419                          ;*****************************************************************************
 12420
 12421  070722  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
 12422  070726  103407                          BCS     20$                     ;BR IF INIT WAS OK
 12423  070730  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 12427  070734  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
 12428  070736                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
        070736  104455                                                          TRAP    C$ERDF
        070740  001323                                                          .WORD   723
        070742  003650                                                          .WORD   SFIERR
        070744  012124                                                          .WORD   SFIMSG
 12429  070746  013737  002172  073020  20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
 12430
 12431  070754  012704  073000                  MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 12432
 12433                          ;*****************************************************************************
 12434                          ;
 12435                          ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 12436                          ;
 12437                          ;*****************************************************************************
 12438
 12439  070760  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
```

TEST 6: REREADS

```
12440 070764  103407                  BCS     26$                     ;BR, IF COMMAND ISSUED OK
12441 070766  005237  002212          INC     FATFLG                  ;BUMP COUNT
12445 070772  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
12446 070774                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      070774  104456                                                          TRAP    C$ERHRD
      070776  001324                                                          .WORD   724
      071000  005054                                                          .WORD   WRTMSG
      071002  012124                                                          .WORD   SFIMSG
12447 071004                  26$:    CKLOOP                          ;LOOP IF SELECTED
      071004  104406                                                          TRAP    C$CLP1
12448
12449                         ;*************************************************************************
12450                         ;
12451                         ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
12452                         ;
12453                         ;*************************************************************************
12454
12455 071006  004737  021252          JSR     PC,INVERT               ;INVERT THE EXTENDED FEATURES SWITCH
12456 071012  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
12457 071016  103411                  BCS     30$                     ;BR, IF NO PROBLEM
12458 071020  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR
12459 071024  010004                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
12460 071026  005237  002212          INC     FATFLG                  ;BUMP COUNT
12464 071032                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      071032  104456                                                          TRAP    C$ERHRD
      071034  001325                                                          .WORD   725
      071036  074464                                                          .WORD   T26RWN
      071040  012136                                                          .WORD   PKTSSR
12465 071042                  30$:    CKLOOP                          ;LOOP IF SELECTED
      071042  104406                                                          TRAP    C$CLP1
12466
12467                         ;*************************************************************************
12468                         ;
12469                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
12470                         ;
12471                         ;*************************************************************************
12472
12473 071044  013701  073030          MOV     T26BFR+6,R1             ;PICK UP XSTO
12474 071050  010102                  MOV     R1,R2                   ;SET UP EXPECTED
12475 071052  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
12476 071056  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
12477 071060  001406                  BEQ     40$                     ;BR, IF EQUAL (OK)
12478 071062  005237  002212          INC     FATFLG                  ;BUMP COUNT
12482 071066                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      071066  104456                                                          TRAP    C$ERHRD
      071070  001326                                                          .WORD   726
      071072  074175                                                          .WORD   T26BOT
      071074  015564                                                          .WORD   EXPREC
12483 071076                  40$:    CKLOOP                          ;LOOP IF SELECTED
      071076  104406                                                          TRAP    C$CLP1
12484 071100  013737  003114  073132  MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
12485
12486                         ;*************************************************************************
12487                         ;
12488                         ;WRITE DATA,CVC=1,ACK COMMAND
12489                         ;
12490                         ;*************************************************************************
```

TEST 6: REREADS

```
12491
12492 071106  012737  140005  073130          MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
12493 071114  012704  073130                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
12494 071120  012737  000400  073136  65$:    MOV     #256.,T26SZ             ;SET UP RECORD SIZE IN PACKET
12495 071126  013777  073156  111760          MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
12496 071134  062737  000001  073156          ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
12497 071142  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
12498 071146  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
12499 071152  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
12500 071156  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
12501 071162  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
12502 071164  001406                          BEQ     75$                     ;BR, IF OK
12503 071166  005237  002212                  INC     FATFLG                  ;BUMP COUNT
12507 071172                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      071172  104456                                                                  TRAP    C$ERHRD
      071174  001327                                                                  .WORD   727
      071176  005111                                                                  .WORD   WRTERR
      071200  012136                                                                  .WORD   PKTSSR
12508 071202                          75$:    CKLOOP                          ;LOOP IF SELECTED
      071202  104406                                                                  TRAP    C$CLP1
12509 071204  022737  000013  073156          CMP     #11.,T26CNT             ;CHECK NUMBER OF RECORDS WRITTEN
12510 071212  001401                          BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
12511 071214  000741                          BR      65$                     ;WRITE MORE RECORDS
12512 071216                          120$:
12513 071216  005037  003132                  CLR     NXMHI                           ;SET TO 16 BIT ADDRESS
12514 071222                          125$:
12515 071222  005037  073156                  CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
12516
12517                                 ;*************************************************************************
12518                                 ;
12519                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
12520                                 ;
12521                                 ;*************************************************************************
12522
12523 071226  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
12524 071232  103411                          BCS     130$                    ;BR, IF NO PROBLEM
12525 071234  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
12526 071240  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
12527 071242  005237  002212                  INC     FATFLG                  ;BUMP COUNT
12531 071246                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      071246  104456                                                                  TRAP    C$ERHRD
      071250  001330                                                                  .WORD   728
      071252  074464                                                                  .WORD   T26RWN
      071254  012136                                                                  .WORD   PKTSSR
12532 071256                          130$:   CKLOOP                          ;LOOP IF SELECTED
      071256  104406                                                                  TRAP    C$CLP1
12533
12534                                 ;*************************************************************************
12535                                 ;
12536                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
12537                                 ;
12538                                 ;*************************************************************************
12539
12540 071260  013701  073030                  MOV     T26BFR+6,R1             ;PICK UP XST0
12541 071264  010102                          MOV     R1,R2                   ;SET UP EXPECTED
12542 071266  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
12543 071272  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
```

TEST 6: REREADS

```
12544 071274  001406                      BEQ     140$                    ;BR, IF EQUAL (OK)
12545 071276  005237  002212              INC     FATFLG                  ;BUMP COUNT
12549 071302                              ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      071302  104456                                                              TRAP    C$ERHRD
      071304  001331                                                              .WORD   729
      071306  074175                                                              .WORD   T26BOT
      071310  015564                                                              .WORD   EXPREC
12550 071312                        140$:   CKLOOP                          ;LOOP IF SELECTED
      071312  104406                                                              TRAP    C$CLP1
12551 071314  012703  073146              MOV     #T26RN,R3               ;COMMAND BUFFER ADDRESS
12552 071320  013737  003130  073132 150$: MOV     NXMLO,T26RB             ;STARTING READ BUFFER ADDRESS
12553 071326  013737  003132  073134      MOV     NXMHI,T26RB+2           ;SET UP HIGH ORDER ADDRESS BITS
12554
12555                       ;*************************************************************************
12556                       ;
12557                       ;REREAD DATA,IE,ACK, OPP COMMAND
12558                       ;
12559                       ;*************************************************************************
12560
12561 071334  011337  073130              MOV     (R3),T26PK3             ;REREAD DATA,IE,ACK, OPP COMMAND
12562 071340  012704  073130        165$: MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
12563 071344  012737  000400  073136      MOV     #256.,T26SZ             ;SET UP RECORD SIZE IN PACKET
12564 071352  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
12565 071356  004737  016340              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
12566 071362  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
12567 071366  012702  104210              MOV     #SSR!NXM!SC!BIT3,R2     ;SET UP EXPECTED
12568 071372  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
12569 071374  001422                      BEQ     170$                    ;BR, IF OK
12570 071376  031327  001000              BIT     (R3),#BIT9              ;CHECK FOR A READ COMMAND
12571 071402  001403                      BEQ     168$                    ;BR, IF IT WAS A READ COMMAND
12572 071404  030127  000002              BIT     R1,#BIT1                ;WAS BIT1 SET
12573 071410  001014                      BNE     170$                    ;BR, IF REREAD AND BIT1 SET
12574 071412                        168$:
12575 071412  005237  003132              INC     NXMHI                   ;BUMP TO NEXT ADDRESS RANGE
12576 071416  023727  003132  000004      CMP     NXMHI,#4                ;CHECK FOR OVERFLOW
12577 071424  001276                      BNE     125$                    ;BR, IF MORE BITS TO GO
12578 071426  005237  002212              INC     FATFLG                  ;BUMP COUNT
12582 071432                              ERRHRD  ERRNO,T26RRF,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
      071432  104456                                                              TRAP    C$ERHRD
      071434  001332                                                              .WORD   730
      071436  073405                                                              .WORD   T26RRF
      071440  012136                                                              .WORD   PKTSSR
12583 071442                        170$:   CKLOOP                          ;LOOP IF SELECTED
      071442  104406                                                              TRAP    C$CLP1
12584
12585                       ;*************************************************************************
12586                       ;
12587                       ;READ DATA, ACK,CVC=1 COMMAND
12588                       ;
12589                       ;*************************************************************************
12590
12591 071444  012737  140001  073130      MOV     #140001,T26PK3          ;READ DATA, ACK,CVC=1 COMMAND
12592 071452  012737  000400  073136      MOV     #256.,T26SZ             ;SET SIZE INTO PACKET
12593 071460  005037  073134              CLR     T26RB+2                 ;CLEAR OUT HIGH ADDRESS BITS
12594 071464  013737  003114  073132      MOV     FREE,T26RB              ;GIVE READ A GOOD BUFFER
12595 071472  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE READ DATA COMMAND
12596 071476  004737  016340              JSR     PC,WAITF                ;WAIT FOR SSR
```

TEST 6: REREADS

```
12597 071502  016501  000002          MOV     TSSR(R5),R1             ;PICK UP THE TSSR
12598 071506  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED
12599 071512  020102                  CMP     R1,R2                   ;IS THE TSSR OK
12600 071514  001406                  BEQ     180$                    ;BR, IF TSSR OK (GOOD)
12601 071516  005237  002212          INC     FATFLG                  ;BUMP COUNT
12605 071522                          ERRHRD  ERRNO,RDERR,PKTSSR      ;READ DATA COMMAND FAILED
      071522  104456                                                          TRAP    C$ERHRD
      071524  001333                                                          .WORD   731
      071526  005204                                                          .WORD   RDERR
      071530  012136                                                          .WORD   PKTSSR
12606 071532                  180$:   CKLOOP                          ;LOOP IF SELECTED
      071532  104406                                                          TRAP    C$CLP1
12607 071534  017701  111354          MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
12608 071540  012702  000001          MOV     #1,R2                   ;SET UP EXPECTED
12609 071544  020102                  CMP     R1,R2                   ;IS TAPE POSITION CORRECT
12610 071546  001406                  BEQ     190$                    ;KEEP GOING POSITION OK
12611 071550  005237  002212          INC     FATFLG                  ;BUMP COUNT
12615 071554                          ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
      071554  104456                                                          TRAP    C$ERHRD
      071556  001334                                                          .WORD   732
      071560  073166                                                          .WORD   T26WNG
      071562  015564                                                          .WORD   EXPREC
12616 071564                  190$:   CKLOOP
      071564  104406                                                          TRAP    C$CLP1
12617
12618                                 ;*************************************************************************
12619                                 ;
12620                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
12621                                 ;
12622                                 ;*************************************************************************
12623
12624 071566  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
12625 071572  103411                  BCS     194$                    ;BR, IF NO PROBLEM
12626 071574  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR
12627 071600  010004                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
12628 071602  005237  002212          INC     FATFLG                  ;BUMP COUNT
12632 071606                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      071606  104456                                                          TRAP    C$ERHRD
      071610  001335                                                          .WORD   733
      071612  074464                                                          .WORD   T26RWN
      071614  012136                                                          .WORD   PKTSSR
12633 071616                  194$:   CKLOOP                          ;LOOP IF SELECTED
      071616  104406                                                          TRAP    C$CLP1
12634
12635                                 ;*************************************************************************
12636                                 ;
12637                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
12638                                 ;
12639                                 ;*************************************************************************
12640
12641 071620  013701  073030          MOV     T26BFR+6,R1             ;PICK UP XST0
12642 071624  010102                  MOV     R1,R2                   ;SET UP EXPECTED
12643 071626  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
12644 071632  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
12645 071634  001406                  BEQ     196$                    ;BR, IF EQUAL (OK)
12646 071636  005237  002212          INC     FATFLG                  ;BUMP COUNT
12650 071642                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
```

```
TEST  6: REREADS

        071642  104456                                                          TRAP    C$ERHRD
        071644  001336                                                          .WORD   734
        071646  074175                                                          .WORD   T26BOT
        071650  015564                                                          .WORD   EXPREC
 12651  071652                  196$:   CKLOOP                          ;LOOP IF SELECTED
        071652  104406                                                          TRAP    C$CLP1
 12652  071654  010302                  MOV     R3,R2                           ;SAVE R3 FOR A MOMENT
 12653
 12654                          ;*************************************************************************
 12655                          ;
 12656                          ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
 12657                          ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
 12658                          ;
 12659                          ;*************************************************************************
 12660
 12661  071656  012703  000001          MOV     #1,R3                   ;SPACE ONE RECORD
 12662  071662  004737  010556          JSR     PC,SPACE                        ;CALL SPACE ROUTINE
 12663  071666  010203                  MOV     R2,R3                           ;RESTORE R3
 12664  071670  005723                  TST     (R3)+                   ;BUMP COUNTER
 12665  071672  021327  177777          CMP     (R3),#177777            ;END OF COMMAND BUFFER YET
 12666  071676  001210                  BNE     150$                    ;MORE COMMANDS KEEP GOING
 12667  071700                  200$:
 12668  071700                  ENDSUB                                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        071700                                                                  L10117:
        071700  104403                                                          TRAP    C$ESUB
 12669  071702  023727  002212  000017      CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
 12670  071710  103402                      BLO     999$                            ;BR, IF LESS THAN 25
 12671  071712  004737  017272              JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
 12672  071716                  999$:
 12673
 12674                          ;+
 12675                          ;
 12676                          ;TEST 6, SUBTEST 14
 12677                          ;
 12678                          ;VERIFIES THAT REREAD PREVIOUS WITH OPP=0 (SPACE
 12679                          ;REVERSE, READ FORWARD) AND REREAD PREVIOUS WITH OPP=1
 12680                          ;(READ REVERSE, SPACE FORWARD) ISSUED WHEN THE TAPE
 12681                          ;POSITIONED AT BOT CAUSE FUNCTION REJECT TERMINATION
 12682                          ;WITH THE NONEXECUTABLE FUNCTION (NEF) ERROR BIT SET.
 12683                          ;
 12684                          ;
 12685                          ;
 12686                          ;-
 12687  071716                  BGNSUB                                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
        071716                                                                  T6.14:
        071716  104402                                                          TRAP    C$BSUB
 12688  071720  005003                  CLR     R3                              ;CLEAR TEST COUNTER
 12689  071722  004737  075720          JSR     PC,T26REST                      ;SET COMMAND PACKET
 12690  071726  004737  076012          JSR     PC,T26RT2                       ;SET UP OTHER COMMAND PACKET
 12691  071732  004737  076054          JSR     PC,T26RT3                       ;SET UP OTHER COMMAND PACKET
 12692
 12693                          ;*************************************************************************
 12694                          ;
 12695                          ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
 12696                          ;
 12697                          ;*************************************************************************
 12698
```

TEST 6: REREADS

```
12699 071736 004737 016064          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
12700 071742 103407                 BCS     20$                     ;BR IF INIT WAS OK
12701 071744 005237 002212          INC     FATFLG                  ;BUMP COUNT
12705 071750 010001                 MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
12706 071752                        ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      071752 104455                                                       TRAP    C$ERDF
      071754 001337                                                       .WORD   735
      071756 003650                                                       .WORD   SFIERR
      071760 012124                                                       .WORD   SFIMSG
12707 071762 013737 002172 073020 20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
12708
12709 071770 012704 073000          MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
12710
12711                               ;*************************************************************************
12712                               ;
12713                               ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
12714                               ;
12715                               ;*************************************************************************
12716
12717 071774 004737 010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
12718 072000 103407                 BCS     25$                     ;BR, IF COMMAND ISSUED OK
12719 072002 005237 002212          INC     FATFLG                  ;BUMP COUNT
12723 072006 010001                 MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
12724 072010                        ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      072010 104456                                                       TRAP    C$ERHRD
      072012 001340                                                       .WORD   736
      072014 005054                                                       .WORD   WRTMSG
      072016 012124                                                       .WORD   SFIMSG
12725 072020                        25$:    CKLOOP                  ;LOOP IF SELECTED
      072020 104406                                                       TRAP    C$CLP1
12726
12727                               ;*************************************************************************
12728                               ;
12729                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
12730                               ;
12731                               ;*************************************************************************
12732
12733 072022 004737 011104          26$:    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
12734 072026 016501 000002          MOV     TSSR(R5),R1             ;GET TSSR
12735 072032 012702 000200          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
12736 072036 103407                 BCS     30$                     ;BR, IF NO PROBLEM
12737 072040 010004                 MOV     R0,R4                   ;PACKET ADDRESS SET UP
12738 072042 005237 002212          INC     FATFLG                  ;BUMP COUNT
12742 072046                        ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      072046 104456                                                       TRAP    C$ERHRD
      072050 001341                                                       .WORD   /37
      072052 074464                                                       .WORD   T26RWN
      072054 012136                                                       .WORD   PKTSSR
12743 072056                        30$:    CKLOOP                  ;LOOP IF SELECTED
      072056 104406                                                       TRAP    C$CLP1
12744
12745                               ;*************************************************************************
12746                               ;
12747                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
12748                               ;
12749                               ;*************************************************************************
12750
```

TEST 6: REREADS

```
12751 072060  013701  073030            MOV     T26BFR+6,R1             ;PICK UP XSTO
12752 072064  010102                    MOV     R1,R2                   ;SET UP EXPECTED
12753 072066  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
12754 072072  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
12755 072074  001406                    BEQ     40$                     ;BR, IF EQUAL (OK)
12756 072076  005237  002212            INC     FATFLG                  ;BUMP COUNT
12760 072102                            ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      072102  104456                                                            TRAP    C$ERHRD
      072104  001342                                                            .WORD   738
      072106  074175                                                            .WORD   T26BOT
      072110  015564                                                            .WORD   EXPREC
12761 072112                    40$:    CKLOOP                          ;LOOP IF SELECTED
      072112  104406                                                            TRAP    C$CLP1
12762 072114  012737  000400  073136        MOV     #256.,T26SZ             ;SET UP RECORD SIZE IN PACKET
12763 072122  013737  003114  073132        MOV     FREE,T26RB              ;ADDRESS OF READ BUFFER
12764 072130  005703                      TST     R3                      ;CHECK NUMBER OF TIMES THROUGH HERE
12765 072132  001404                      BEQ     50$                     ;BR, IF FIRST TIME THROUGH HERE
12766
12767                           ;*************************************************************************
12768                           ;
12769                           ;REREAD,CVC=1,ACK COMMAND
12770                           ;
12771                           ;*************************************************************************
12772
12773 072134  012737  161001  073130        MOV     #161001,T26PK3          ;REREAD,CVC=1,ACK COMMAND
12774 072142  000403                      BR      55$                     ;SKIP NEXT COMMAND
12775
12776                           ;*************************************************************************
12777                           ;
12778                           ;REREAD,ACK COMMAND
12779                           ;
12780                           ;*************************************************************************
12781
12782 072144  012737  141001  073130  50$:     MOV     #141001,T26PK3          ;REREAD,ACK COMMAND
12783 072152                       55$:
12784 072152  012704  073130              MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
12785 072156                       65$:
12786 072156  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
12787 072162  004737  016340              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
12788 072166  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
12789 072172  012702  100206              MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
12790 072176  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
12791 072200  001406                      BEQ     75$                     ;BR, IF OK
12792 072202  005237  002212              INC     FATFLG                  ;BUMP COUNT
12796 072206                              ERRHRD  ERRNO,T26WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
      072206  104456                                                            TRAP    C$ERHRD
      072210  001343                                                            .WORD   739
      072212  074123                                                            .WORD   T26WDE
      072214  012136                                                            .WORD   PKTSSR
12797 072216                       75$:    CKLOOP                          ;LOOP IF SELECTED
      072216  104406                                                            TRAP    C$CLP1
12798
12799                           ;*************************************************************************
12800                           ;
12801                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
12802                           ;
12803                           ;*************************************************************************
```

```
TEST  6: REREADS

12804
12805 072220  013701  073030                MOV     T26BFR+6,R1             ;GET XSTO STATUS WORD
12806 072224  010102                        MOV     R1,R2                   ;SET UP EXPECTED
12807 072226  052702  002000                BIS     #BIT10,R2               ;SET THE NEF BIT
12808 072232  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
12809 072234  001406                        BEQ     170$                    ;BR, IF EQUAL (GOOD)
12810 072236  005237  002212                INC     FATFLG                  ;BUMP COUNT
12814 072242                                ERRHRD  ERRNO,T26NEF,EXPREC     ;NEF SHOULD BE SET
      072242  104456                                                               TRAP    C$ERHRD
      072244  001344                                                               .WORD   740
      072246  073254                                                               .WORD   T26NEF
      072250  015564                                                               .WORD   EXPREC
12815 072252                        170$:   CKLOOP
      072252  104406                                                               TRAP    C$CLP1
12816 072254  005103                        COM     R3                      ;RESET THE SWITCH
12817 072256  001261                        BNE     26$                     ;BR, IF FIRST TIME THROUGH HERE
12818 072260                                ENDSUB
      072260                                                                    L10120:
      072260  104403                                                               TRAP    C$ESUB
12819 072262  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
12820 072270  103402                        BLO     999$                            ;BR, IF LESS THAN 25
12821 072272  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
12822 072276                        999$:
12823
12824                               ;*
12825                               ;
12826                               ;TEST 6, SUBTEST 15
12827                               ;
12828                               ;VERIFIES THAT REREAD PREVIOUS WITH OPP=1 (SPACE
12829                               ;REVERSE, READ FORWARD) AND REREAD PREVIOUS WITH OPP=1
12830                               ;(READ REVERSE, SPACE FORWARD) ISSUED WHEN THE TAPE
12831                               ;POSITIONED JUST BEFORE THE FIRST RECORD ON TAPE (BUT
12832                               ;NOT AT BOT) CAUSES TAPE STATUS ALERT TERMINATION WITH
12833                               ;THE REVERSE INTO BOT (RIB) STATUS BIT SET.
12834                               ;
12835                               ;
12836                               ;-
12837
12838 072276                                BGNSUB                          ;>>>.>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      072276                                                                        T6.15:
      072276  104402                                                               TRAP    C$BSUB
12839 072300  005037  073160                CLR     T26CNU                  ;CLEAR OUT COUNTER
12840 072304  004737  075720                JSR     PC,T26REST              ;SET COMMAND PACKET
12841 072310  004737  076012                JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
12842 072314  004737  076054                JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
12843
12844                               ;*****************************************************************************
12845                               ;
12846                               ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
12847                               ;
12848                               ;*****************************************************************************
12849
12850 072320  004737  016064                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
12851 072324  103407                        BCS     20$                     ;BR IF INIT WAS OK
12852 072326  005237  002212                INC     FATFLG                  ;BUMP COUNT
12856 072332  010001                        MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
12857 072334                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
```

```
TEST  6: REREADS

        072334  104455                                                          TRAP    C$ERDF
        072336  001345                                                          .WORD   741
        072340  003650                                                          .WORD   SFIERR
        072342  012124                                                          .WORD   SFIMSG
 12858  072344  013737  002172  073020  20$:    MOV     UNITN,T26DSW           ;SET UP UNIT NUMBER
 12859
 12860  072352  012704  073000                  MOV     #T26PACKET,R4          ;SUBROUTINE NEEDS PACKET ADDRESS
 12861
 12862                                  ;*************************************************************************
 12863                                  ;
 12864                                  ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 12865                                  ;
 12866                                  ;*************************************************************************
 12867
 12868  072356  004737  010752                  JSR     PC,WRTCHR              ;ISSUE WRITE CHARACTERISTICS
 12869  072362  103407                          BCS     25$                    ;BR, IF COMMAND ISSUED OK
 12870  072364  005237  002212                  INC     FATFLG                 ;BUMP COUNT
 12874  072370  010001                          MOV     R0,R1                  ;SAVE CONTENTS OF TSSR
 12875  072372                                  ERRHRD  ERRNO,WRTMSG,SFIMSG    ;WRITE CHARACTERISTISC FAILED
        072372  104456                                                          TRAP    C$ERHRD
        072374  001346                                                          .WORD   742
        072376  005054                                                          .WORD   WRTMSG
        072400  012124                                                          .WORD   SFIMSG
 12876  072402                          25$:    CKLOOP                         ;LOOP IF SELECTED
        072402  104406                                                          TRAP    C$CLP1
 12877
 12878                                  ;*************************************************************************
 12879                                  ;
 12880                                  ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 12881                                  ;
 12882                                  ;*************************************************************************
 12883
 12884  072404  004737  011104          26$:    JSR     PC,REWIND              ;CALL TAPE REWIND COMMAND
 12885  072410  016501  000002                  MOV     TSSR(R5),R1            ;GET TSSR
 12886  072414  012702  000200                  MOV     #SSR,R2                ;SET UP EXPECTED TSSR
 12887  072420  103407                          BCS     30$                    ;BR, IF NO PROBLEM
 12888  072422  010004                          MOV     R0,R4                  ;PACKET ADDRESS SET UP
 12889  072424  005237  002212                  INC     FATFLG                 ;BUMP COUNT
 12893  072430                                  ERRHRD  ERRNO,T26RWN,PKTSSR    ;REWIND NOT ACCEPTED
        072430  104456                                                          TRAP    C$ERHRD
        072432  001347                                                          .WORD   743
        072434  074464                                                          .WORD   T26RWN
        072436  012136                                                          .WORD   PKTSSR
 12894  072440                          30$:    CKLOOP                         ;LOOP IF SELECTED
        072440  104406                                                          TRAP    C$CLP1
 12895
 12896                                  ;*************************************************************************
 12897                                  ;
 12898                                  ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 12899                                  ;
 12900                                  ;*************************************************************************
 12901
 12902  072442  013701  073030                  MOV     T26BFR+6,R1            ;PICK UP XST0
 12903  072446  010102                          MOV     R1,R2                  ;SET UP EXPECTED
 12904  072450  052702  000002                  BIS     #BIT1,R2               ;SET BOT BIT IN EXPECTED
 12905  072454  020102                          CMP     R1,R2                  ;DOES EXP = REC'D
 12906  072456  001406                          BEQ     40$                    ;BR, IF EQUAL (OK)
```

TEST 6: REREADS

```
12907 072460  005237  002212          INC     FATFLG                  ;BUMP COUNT
12911 072464                          ERRHRD  ERRNO,T26BOT,EXPREC      ;TAPE NOT AT BOT AFTER REWIND
      072464  104456                                                          TRAP    C$ERHRD
      072466  001350                                                          .WORD   744
      072470  074175                                                          .WORD   T26BOT
      072472  015564                                                          .WORD   EXPREC
12912 072474                    40$:  CKLOOP
      072474  104406                                                          TRAP    C$CLP1
12913
12914                           ;*************************************************************************
12915                           ;
12916                           ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
12917                           ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
12918                           ;
12919                           ;*************************************************************************
12920
12921 072476  012703  000001          MOV     #000001,R3              ;SET UP SPACE FORWARD 1 RECORD
12922 072502  004737  010556          JSR     PC,SPACE                ;ISSUE SPACE COMMAND
12923 072506  103411                  BCS     75$                     ;BR, IF OK
12924 072510  016501  000002          MOV     TSSR(R5),R1             ;GET STATUS DATA
12925 072514  010004                  MOV     R0,R4                   ;GET PACKET ADDRESS
12926 072516  005237  002212          INC     FATFLG                  ;BUMP COUNT
12930 072522                          ERRHRD  ERRNO,T26WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
      072522  104456                                                          TRAP    C$ERHRD
      072524  001351                                                          .WORD   745
      072526  074123                                                          .WORD   T26WDE
      072530  012136                                                          .WORD   PKTSSR
12931 072532                    75$:  CKLOOP                          ;LOOP IF SELECTED
      072532  104406                                                          TRAP    C$CLP1
12932
12933                           ;*************************************************************************
12934                           ;
12935                           ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
12936                           ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
12937                           ;
12938                           ;*************************************************************************
12939
12940 072534  012703  100001          MOV     #100001,R3              ;SET SPACE REVERSE 1 RECORD
12941 072540  004737  010556          JSR     PC,SPACE                ;ISSUE COMMAND
12942 072544  103411                  BCS     175$                    ;GO ON IF ALL IS WELL
12943 072546  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
12944 072552  010004                  MOV     R0,R4                   ;SET UP EXPECTED (PACKET CONTENTS)
12945 072554  005237  002212          INC     FATFLG                  ;BUMP COUNT
12949 072560                          ERRHRD  ERRNO,T26WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
      072560  104456                                                          TRAP    C$ERHRD
      072562  001352                                                          .WORD   /46
      072564  074123                                                          .WORD   T26WDE
      072566  012136                                                          .WORD   PKTSSR
12950 072570                    175$: CKLOOP                          ;LOOP IF SELECTED
      072570  104406                                                          TRAP    C$CLP1
12951 072572  013737  003114  073132      MOV     FREE,T26RB              ;ADDRESS OF BUFFER
12952 072600  005737  073160            TST     T26CNU                  ;CHECK FOR TIMES THROUGH HERE
12953 072604  001404                    BEQ     176$                    ;BR, IF FIRST TIME THROUGH
12954
12955                           ;*************************************************************************
12956                           ;
12957                           ;REREAD (PREVIOUS),IE,ACK,OPP=1 CMD.
```

TEST 6: REREADS

```
12958                                   ;
12959                                   ;*************************************************************************
12960
12961 072606  012737  161001  073130            MOV     #161001,T26PK3          ;REREAD (PREVIOUS),IE,ACK,OPP=1 CMD.
12962 072614  000403                            BR      178$                    ;SKIP NEXT COMMAND
12963
12964                                   ;*************************************************************************
12965                                   ;
12966                                   ;REREAD ,ACK,OPP=1 COMMAND
12967                                   ;
12968                                   ;*************************************************************************
12969
12970 072616  012737  141001  073130  176$:   MOV     #141001,T26PK3          ;REREAD ,ACK,OPP=1 COMMAND
12971 072624                            178$:
12972 072624  012704  073130                    MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
12973 072630  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
12974 072634  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
12975 072640  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
12976 072644  C12702  100204                    MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
12977 072650  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
12978 072652  001406                            BEQ     180$                    ;BR, IF OK
12979 072654  005237  002212                    INC     FATFLG                  ;BUMP COUNT
12983 072660                                    ERRHRD  ERRNO,T26WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
      072660  104456                                                                    TRAP    C$ERHRD
      072662  001353                                                                    .WORD   747
      072664  074123                                                                    .WORD   T26WDE
      072666  012136                                                                    .WORD   PKTSSR
12984 072670                            180$:   CKLOOP                          ;LOOP IF SELECTED
      072670  104406                                                                    TRAP    C$CLP1
12985 072672  013701  073036                    MOV     T26BFR+14,R1            ;GET XST3 STATUS WORD
12986 072676  010102                            MOV     R1,R2                   ;SET UP EXPECTED
12987 072700  052702  000001                    BIS     #BIT0,R2                ;SET THE NEF BIT
12988 072704  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
12989 072706  001406                            BEQ     190$                    ;BR, IF EQUAL (GOOD)
12990 072710  005237  002212                    INC     FATFLG                  ;BUMP COUNT
12994 072714                                    ERRHRD  ERRNO,T26NEF,EXPREC     ;NEF SHOULD BE SET
      072714  104456                                                                    TRAP    C$ERHRD
      072716  001354                                                                    .WORD   748
      072720  073254                                                                    .WORD   T26NEF
      072722  015564                                                                    .WORD   EXPREC
12995 072724                            190$:   CKLOOP
      072724  104406                                                                    TRAP    C$CLP1
12996 072726  005137  073160                    COM     T26CNU                  ;SET SWITCH THE OTHER WAY
12997 072732  001224                            BNE     26$                     ;BR, IF FIRST TIME THROUGH
12998 072734                                    ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
      072734                                                                                L10121:
      072734  104403                                                                    TRAP    C$ESUB
12999 072736  023727  002212  000017            CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
13000 072744  103402                            BLO     999$                            ;BR, IF LESS THAN 25
13001 072746  004737  017272                    JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
13002 072752                            999$:
13003                                   ;
13004                                   ;
13005                                   ;
13006 072752  004737  016546                    JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
13007 072756  103002                            BCC     163$                    ;BR, IF NO LOOP REQUIRED
13008 072760  000137  0565                      JMP     T26LOOP                 ;EXECUTE AGAIN
```

TEST  6: REREADS

```
13009 072764                    163$:
13010 072764                            EXIT    TST                     ;ALL DONE THIS TEST
      072764  104432                                                              TRAP    C$EXIT
      072766  003116                                                              .WORD   L10102-.
13011
13012                           ;+
13013                           ;LOCAL STORAGE FOR THIS TEST
13014                           ;-
13016 072770                            .BLKB   10-<.-TSV2&7>
13018 073000                    T26PACKET:                              ;COMMAND PACKET FOR TEST
13019 073000  014004                    .WORD   14004                   ;WRITE CHARACTERISTICS COMMAND, WITH CVC=1, ACK
13020 073002  073010                    .WORD   T26DATA                 ;ADDRESS OF CHARACTERISTICS BLOCK
13021 073004  000000                    .WORD   0
13022 073006  000012                    .WORD   10.                     ;STARTING VALUE OF BLOCK SIZE
13023 073010                    T26DATA:                                ;CHARACTERISTICS DATA BLOCK
13024 073010  073022                    .WORD   T26BFR                  ;ADDRESS OF MESSAGE BUFFER
13025 073012  000000                    .WORD   0
13026 073014  000024                    .WORD   20.                     ;LENGTH OF MESSAGE BUFFER
13027 073016  C00000                    .WORD   0
13028 073020  000000            T26DSW: .WORD   0                       ;SELECT DRIVE 0
13029 073022                    T26BFR: .BLKW   25.                     ;MESSAGE BUFFER
13030                           ;
13031                           ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
13032                           ;
13034 073104                            .BLKB   10-<.-TSV2&7>
13036 073110                    T26PK2:
13037 073110  100006                    .WORD   100006                  ;WRITE SUB SYS MEM COMMAND, AND ACK
13038 073112  073140                    .WORD   T26BF2                  ;ADDRESS OF SELECT BLOCK DATA
13039 073114  000000                    .WORD   0
13040 073116  000006                    .WORD   6.                      ;SIZE OF DATA PACKET
13041
13043 073120                            .BLKB   10-<.-TSV2&7>
13045 073130                    T26PK3:
13046 073130  140005                    .WORD   140005                  ;REREAD COMMAND, CVC=1 AND ACK
13047 073132                    T26RB:
13048 073132  003114            T26WB:  .WORD   FREE                    ;ADDRESS OF WRITE BUFFER
13049 073134  000000                    .WORD   0
13050 073136  000000            T26SZ:  .WORD   0                       ;SIZE OF BUFFER (EXTENT)
13051                                   .EVEN
13052                           ;
13053                           ;
13054                           ;
13055 073140                    T26BF2:
13056 073140     010            T26BS0: .BYTE   10                      ;BSEL0 AREA
13057 073141     200            T26BS1: .BYTE   200                     ;BSEL1 AREA
13058 073142  000000            T26S2:  .WORD   0                       ;SEL 2 AREA
13059 073144  000000            T26S3:  .WORD   0                       ;DATA AREA
13060                           ;
13061                           ;
13062                                   .EVEN
13063                           ;TAPE MOTION PACKET COMMAND VALUES
13064
13065 073146  140001            T26RN:  .WORD   140001                  ;READ DATA
13066 073150  141401                    .WORD   141401                  ;REREAD NEXT OPP=0
13067 073152  161401                    .WORD   161401                  ;REREAD NEXT OPP=1
13068 073154  177777                    .WORD   177777                  ;END OF DATA
13069
```

TEST 6: REREADS

```
13070
13071 073156  000000                    ;
                                        T26CNT: .WORD   0                       ;TAPE RECORD COUNTER STORAGE AREA
13072 073160  000000                    T26CNU: .WORD   0                       ;TAPE RECORD COUNTER STORAGE AREA
13073
13074 073162  000000                    T26RSZ: .WORD   0                       ;RECORD STORAGE SIZE  AREA
13075
13076 073164  000000                    T26DLY: .WORD   0                       ;DELAY COUNTER AREA
13077
13078
13079                                   ;+
13080                                   ;LOCAL TEXT MESSAGES FOR TEST
13081                                   ;-
13082
13083
13084 073166      124     141     160  T26WNG: .ASCIZ  'Tape Position Incorrect After REREAD Previous (OPP=1)'
13085 073254      122     105     122  T26NEF: .ASCIZ  'REREAD PREVIOUS, At BOT, Failed To Set NEF (XSTO)'
13086 073336      124     123     123  T26RDF: .ASCIZ  'TSSR Incorrect After READ DATA Command'
13087 073405      122     105     122  T26RRF: .ASCIZ  'REREAD Previous (Space Reverse, Read Forward) Command Failed'
13088 073502      122     105     122  T26RRG: .ASCIZ  'REREAD Previous (Read Reverse, Space Forward) Command Failed'
13089 073577      120     117     123  T26SC:  .ASCIZ  'POSITION (Space Command) Failed, TSSR Not Correct'
13090 073661      122     111     102  T26LOR: .ASCIZ  'RIB NOT SET AFTER READ REVERSE INTO BOT'
13091 073731      124     123     123  T26WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
13092 074006      111     154     154  T26LOQ: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
13093 074067      122     105     122  T26SSR: .ASCIZ  'REREAD COMMAND Not Accepted'
13094 074123      124     123     123  T26WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA Command'
13095 074175      124     141     160  T26BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
13096 074242      104     141     164  T26DTA: .ASCIZ  'Data Written To Tape Not Equal To Data Read From Tape'
13097 074330      122     105     122  T26EOT: .ASCIZ  'REREAD DATA OVER EOT GAVE NO TAPE STATUS ALERT'
13098 074407      124     123     123  T26TM:  .ASCIZ  'TSSR Not Correct After REREAD COMMAND Reject'
13099 074464      122     145     167  T26RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
13100 074533      122     101     115  T26RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
13101 074606      124     123     123  T26AM3: .ASCIZ  'TSSR Init. Failed After REREAD COMMAND'
13102 074655      104     162     151  T26OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
13103 074730      124     123     123  T26WDD: .ASCIZ  'TSSR Not Correct After REREAD DATA Command, SWB Bit Set'
13104 075020      124     123     123  T26WDC: .ASCIZ  'TSSR Not Correct After REREAD DATA Command'
13105 075073      103     126     103  T26VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
13106 075146      124     123     102  T26BA:  .ASCIZ  'TSBA Not Correct After REREAD DATA Command'
13107 075221      127     122     111  T26WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
13108 075310      122     145     141  T26LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XSTO'
13109 075372      122     145     141  T26LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XSTO'
13110 075454      122     145     163  T26PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
13111 075542      122     145     141  T26TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert'
13112 075630      104     141     164  T26NEQ: .ASCIZ  'Data REREAD From Tape Not Correct, After SWB=1'
13113 075707      122     145     162  TST26ID:        .ASCIZ  'Rereads'
13114                                           .EVEN
13115                                   ;+
13116                                   ;
13117                                   ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
13118                                   ;WRITE SUBSYSTEM MEMORY COMMAND
13119                                   ;
13120                                   ;-
13121
13122 075720                            T26REST:
13123 075720                                    SAVREG                          ;SAVE THE REGISTERS
13124 075724  012701  073000                    MOV     #T26PACKET,R1           ;START OF THE PACKET
13125 075730  012721  140004                    MOV     #140004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK, CVC=1
13126 075734  012721  073010                    MOV     #T26DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
```

TEST 6: REREADS

```
13127 075740  005021                        CLR     (R1)+           ;EXTENDED ADDRESS
13128 075742  012721  000012                MOV     #10.,(R1)+      ;SIZE OF DATA BLOCK IN BYTES
13129 075746  012721  073022                MOV     #T26BFR,(R1)+   ;ADDRESS OF MESSAGE BUFFER
13130 075752  005021                        CLR     (R1)+
13131 075754  012721  000024                MOV     #20.,(R1)+      ;LENGTH OF MESSAGE BUFFER
13132 075760  005021                        CLR     (R1)+
13133 075762  012711  000000                MOV     #0,(R1)         ;SELECT DRIVE ZERO (0)
13134 075766  012702  000030                MOV     #24.,R2         ;NUMBER OF LOCATIONS TO BE CLEARED
13135 075772  012762  177777  073022  64$:  MOV     #177777,T26BFR(R2)  ;ALL ONES TO MESSAGE BUFFER
13136 076000  005742                        TST     -(R2)           ;NEXT LOCATION
13137 076002  020227  000000                CMP     R2,#0           ;CHECK FOR END OF LOOP
13138 076006  001371                        BNE     64$             ;KEEP GOING UNTIL DONE
13139 076010  000207                        RTS     PC              ;RETURN
13140
13141
13142 076012                        T26RT2:
13143 076012                                SAVREG                  ;SAVE THE REGISTERS
13144 076016  012701  073110                MOV     #T26PK2,R1      ;START OF THE PACKET
13145 076022  C12721  140006                MOV     #140006,(R1)+   ;WRITE SUBSYSTEM MEM. WITH ACK,CVC=1,
13146 076026  012721  073140                MOV     #T26BF2,(R1)+   ;ADDRESS OF DATA BLOCK
13147 076032  005021                        CLR     (R1)+           ;EXTENDED ADDRESS
13148 076034  012721  000006                MOV     #6.,(R1)+       ;SIZE OF DATA BLOCK IN BYTES
13149 076040  005021                        CLR     (R1)+
13150 076042  012701  073140                MOV     #T26BF2,R1      ;POINT TO DATA SEL AREA
13151 076046  005021                        CLR     (R1)+
13152 076050  005011                        CLR     (R1)
13153 076052  000207                        RTS     PC              ;RETURN
13154 076054                        T26RT3:
13155 076054                                SAVREG                  ;SAVE THE REGISTERS
13156 076060  012701  073130                MOV     #T26PK3,R1      ;START OF THE PACKET
13157 076064  012721  000000                MOV     #0,(R1)+        ;WRITE SUBSYSTEM MEM. WITH ACK,
13158 076070  012721  000000                MOV     #0,(R1)+        ;ADDRESS OF DATA BLOCK
13159 076074  005021                        CLR     (R1)+           ;EXTENDED ADDRESS
13160 076076  012711  000000                MOV     #0,(R1)         ;SIZE OF DATA BLOCK IN BYTES
13161 076102  000207                        RTS     PC              ;RETURN
13162 076104                                ENDTST
      076104                                                            L10102:
      076104  104401                                                           TRAP    C$ETST
13163
13164                                       .SBTTL  TEST  7: WRITE DATA RETRY
13165                               ;+
13166                               ;
13167                               ;THIS TEST VERIFIES PROPER OPERATION OF THE WRITE DATA RETRY
13168                               ;COMMAND (SPACE REVERSE, ERASE, WRITE DATA)
13169                               ;
13170                               ;
13171                               ;THE TEST CONSISTS OF THE FOLLOWING 5 SUBTESTS
13172                               ;
13173                               ;
13174                               ;
13175                               ;-
13176 076106                                BGNTST
      076106                                                                T7::
13177 076106  012737  006446  002170        MOV     #EPRT2,EPRTSW   ;SECONDARY ERROR MESSAGE
13178 076114  005037  003124                CLR     KTENABLE        ;TURN OFF KT11
13179 076120  004737  017364                JSR     PC,KTOFF        ;TURN KT11 BACK OFF IF THERE
13184 076124  012700  105743                MOV     #TST27ID,R0     ;ASCII MESSAGE TO IDENTIFY TEST
```

TEST 7: WRITE DATA RETRY

```
13185 076130  004737  016600          JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
13186 076134  012737  000005  002206  MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
13187 076142  005037  103006          CLR     T27CNT                  ;CLEAR TAPE RECORD COUNTER
13188                                 ;+
13189                                 ;
13190                                 ;TEST 7, SUBTEST 1
13191                                 ;
13192                                 ;
13193                                 ;VERIFIES THAT A WRITE DATA RETRY COMMAND ISSUED WHILE
13194                                 ;THE TAPE IS POSITIONED AT BOT CAUSES FUNCTION REJECT
13195                                 ;TERMINATION, WITH THE NON-EXECUTABLE FUNCTION (NEF)
13196                                 ;ERROR BIT SET.
13197                                 ;
13198                                 ;
13199                                 ;-
13200
13201 076146                         T27LOOP:
13202 076146                         BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
       076146                                                                    T7.1:
       076146  104402                                                                TRAP    C$BSUB
13203 076150  004737  105764          JSR     PC,T27REST              ;SET COMMAND PACKET
13204 076154  004737  106056          JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
13205 076160  004737  106120          JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
13206 076164  012737  176750  103012  MOV     #65000.,T27DLY          ;SET UP DELAY COUNTER
13207 076172  005037  103006          CLR     T27CNT                  ;CLEAR COUNTER
13208
13209                                 ;*************************************************************************
13210                                 ;
13211                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
13212                                 ;
13213                                 ;*************************************************************************
13214
13215 076176  004737  016064  10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
13216 076202  103426                  BCS     20$                     ;BR IF INIT WAS OK
13217 076204                          DELAY   250                     ;DELAY ABOUT .25 SEC
       076204  012727  000250                                                    MOV     #250.,(PC)+
       076210  000000                                                           .WORD   0
       076212  013727  002116                                                    MOV     L$DLY,(PC)+
       076216  000000                                                           .WORD   0
       076220  005367  177772                                                    DEC     -6(PC)
       076224  001375                                                           BNE     .-4
       076226  005367  177756                                                    DEC     -22(PC)
       076232  001367                                                           BNE     .-20
13218 076234  005337  103012          DEC     T27DLY                  ;BUMP COUNTER
13219 076240  001356                  BNE     10$                     ;BR. IF COUNTER NOT DONE
13220 076242  005237  002212          INC     FATFLG                  ;BUMP COUNT
13224 076246  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
13225 076250                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
       076250  104455                                                           TRAP    C$ERDF
       076252  001275                                                           .WORD   701
       076254  003650                                                           .WORD   SFIERR
       076256  012124                                                           .WORD   SFIMSG
13226 076260  013737  002172  102650  20$:    MOV     UNITN,T27DSW            ;SET UP DRIVE NUMBER
13227 076266  012704  102630          MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
13228
13229                                 ;*************************************************************************
13230                                 ;
```

TEST 7: WRITE DATA RETRY

```
13231                                   ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
13232                                   ;
13233                                   ;*************************************************************************
13234
13235 076272  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
13236 076276  103407                            BCS     25$                     ;BR, IF COMMAND ISSUED OK
13237 076300  005237  002212                    INC     FATFLG                  ;BUMP COUNT
13241 076304  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
13242 076306                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
       076306  104456                                                                  TRAP    C$ERHRD
       076310  001276                                                                  .WORD   702
       076312  005054                                                                  .WORD   WRTMSG
       076314  012124                                                                  .WORD   SFIMSG
13243 076316                            25$:    CKLOOP                          ;LOOP IF SELECTED
       076316  104406                                                                  TRAP    C$CLP1
13244
13245                                   ;*************************************************************************
13246                                   ;
13247                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
13248                                   ;
13249                                   ;*************************************************************************
13250
13251 076320  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
13252 076324  103407                            BCS     30$                     ;BR, IF NO PROBLEM
13253 076326  010004                            MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
13254 076330  005237  002212                    INC     FATFLG                  ;BUMP COUNT
13258 076334                                    ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
       076334  104456                                                                  TRAP    C$ERHRD
       076336  001277                                                                  .WORD   703
       076340  104165                                                                  .WORD   T27RWN
       076342  012136                                                                  .WORD   PKTSSR
13259 076344                            30$:    CKLOOP                          ;LOOP IF SELECTED
       076344  104406                                                                  TRAP    C$CLP1
13260
13261                                   ;*************************************************************************
13262                                   ;
13263                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
13264                                   ;
13265                                   ;*************************************************************************
13266
13267 076346  013701  102660                    MOV     T27BFR+6,R1             ;PICK UP XST0
13268 076352  010102                            MOV     R1,R2                   ;SET UP EXPECTED
13269 076354  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
13270 076360  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
13271 076362  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
13272 076364  005237  002212                    INC     FATFLG                  ;BUMP COUNT
13276 076370                                    ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
       076370  104456                                                                  TRAP    C$ERHRD
       076372  001300                                                                  .WORD   704
       076374  103661                                                                  .WORD   T27BOT
       076376  015564                                                                  .WORD   EXPREC
13277 076400                            40$:    CKLOOP                          ;LOOP IF SELECTED
       076400  104406                                                                  TRAP    C$CLP1
13278 076402  012737  000400  102766            MOV     #256.,T27SZ             ;SET UP RECORD SIZE
13279 076410  013737  003114  102762            MOV     FREE,T27WB              ;ADDRESS OF WRITE BUFFER
13280
13281                                   ;*************************************************************************
```

TEST 7: WRITE DATA RETRY

```
13282                                   ;
13283                                   ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
13284                                   ;
13285                                   ;*************************************************************************
13286
13287 076416  012737  141005  102760          MOV     #141005,T27PK3          ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
13288 076424  012704  102760                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
13289 076430  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
13290 076434  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
13291 076440  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
13292 076444  012702  100206                  MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
13293 076450  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
13294 076452  001406                          BEQ     75$                     ;BR, IF OK
13295 076454  005237  002212                  INC     FATFLG                  ;BUMP COUNT
13299 076460                                  ERRHRD  ERRNO,T27WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
      076460  104456                                                                  TRAP    C$ERHRD
      076462  001301                                                                  .WORD   705
      076464  103572                                                                  .WORD   T27WDE
      076466  C12136                                                                  .WORD   PKTSSR
13300 076470                          75$:    CKLOOP                          ;LOOP IF SELECTED
      076470  104406                                                                  TRAP    C$CLP1
13301
13302                                   ;*************************************************************************
13303                                   ;
13304                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
13305                                   ;
13306                                   ;*************************************************************************
13307
13308 076472  013701  102660                  MOV     T27BFR+6,R1             ;GET XST0 STATUS WORD
13309 076476  010102                          MOV     R1,R2                   ;SET UP EXPECTED
13310 076500  052702  002000                  BIS     #BIT10,R2               ;SET THE NEF BIT
13311 076504  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
13312 076506  001406                          BEQ     170$                    ;BR, IF EQUAL (GOOD)
13313 076510  005237  002212                  INC     FATFLG                  ;BUMP COUNT
13317 076514                                  ERRHRD  ERRNO,T27NEF,EXPREC     ;NEF SHOULD BE SET
      076514  104456                                                                  TRAP    C$ERHRD
      076516  001302                                                                  .WORD   706
      076520  105331                                                                  .WORD   T27NEF
      076522  015564                                                                  .WORD   EXPREC
13318 076524                          170$:   CKLOOP
      076524  104406                                                                  TRAP    C$CLP1
13319 076526                                  ENDSUB
      076526                                                                  L10123:
      076526  104403                                                                  TRAP    C$ESUB
13320 076530  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
13321 076536  103402                          BLO     999$                            ;BR, IF LESS THAN 25
13322 076540  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
13323 076544                          999$:
13324
13325                                   ;+
13326                                   ;
13327                                   ;TEST 7, SUBTEST 2
13328                                   ;
13329                                   ;VERIFIES THAT WRITE DATA RETRY COMMAND ISSUED WHILE
13330                                   ;THE TAPE IS POSITIONED BEFORE THE FIRST RECORD ON
13331                                   ;TAPE (BUT NOT AT BOT) RESULTS IN TAPE STATUS ALERT
13332                                   ;TERMINATION, WITH THE REVERSE INTO BOT (RIB) STATUS
```

TEST 7: WRITE DATA RETRY

```
13333                                   ;ERROR BIT SET.
13334                                   ;
13335                                   ;
13336                                   ;
13337                                   ;-
13338 076544                                    BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
       076544                                                                                   T7.2:
       076544  104402                                                                           TRAP    C$BSUB
13339  076546  004737  105764                  JSR     PC,T27REST              ;SET COMMAND PACKET
13340  076552  004737  106056                  JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
13341  076556  004737  106120                  JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
13342
13343                                   ;*************************************************************************
13344                                   ;
13345                                   ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
13346                                   ;
13347                                   ;*************************************************************************
13348
13349  076562  C04737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
13350  076566  103407                          BCS     20$                     ;BR IF INIT WAS OK
13351  076570  005237  002212                  INC     FATFLG                  ;BUMP COUNT
13355  076574  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
13356  076576                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
       076576  104455                                                                           TRAP    C$ERDF
       076600  001303                                                                           .WORD   707
       076602  003650                                                                           .WORD   SFIERR
       076604  012124                                                                           .WORD   SFIMSG
13357  076606  013737  002172  102650  20$:    MOV     UNITN,T27DSW            ;SET UP DRIVE NUMBER
13358  076614  012704  102630                  MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
13359
13360                                   ;*************************************************************************
13361                                   ;
13362                                   ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
13363                                   ;
13364                                   ;*************************************************************************
13365
13366  076620  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
13367  076624  103407                          BCS     25$                     ;BR, IF COMMAND ISSUED OK
13368  076626  005237  002212                  INC     FATFLG                  ;BUMP COUNT
13372  076632  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
13373  076634                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
       076634  104456                                                                           TRAP    C$ERHRD
       076636  001304                                                                           .WORD   708
       076640  005054                                                                           .WORD   WRTMSG
       076642  012124                                                                           .WORD   SFIMSG
13374  076644                          25$:    CKLOOP                          ;LOOP IF SELECTED
       076644  104406                                                                           TRAP    C$CLP1
13375
13376                                   ;*************************************************************************
13377                                   ;
13378                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
13379                                   ;
13380                                   ;*************************************************************************
13381
13382  076646  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
13383  076652  103411                          BCS     26$                     ;BR, IF NO PROBLEM
13384  076654  010004                          MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
```

TEST 7: WRITE DATA RETRY

```
13385 076656  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
13386 076662  005237  002212            INC     FATFLG                  ;BUMP COUNT
13390 076666                            ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      076666  104456                                                            TRAP    C$ERHRD
      076670  001305                                                            .WORD   709
      076672  104165                                                            .WORD   T27RWN
      076674  012136                                                            .WORD   PKTSSR
13391 076676                      26$:  CKLOOP                          ;LOOP IF SELECTED
      076676  104406                                                            TRAP    C$CLP1
13392 076700  012703  000400            MOV     #256.,R3                        ;STARTING RECORD SIZE
13393 076704  013737  003114  102762    MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
13394
13395                           ;*************************************************************************
13396                           ;
13397                           ;WRITE DATA,CVC=1,ACK COMMAND
13398                           ;
13399                           ;*************************************************************************
13400
13401 076712  C12737  140005  102760    MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
13402 076720  012704  102760            MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
13403 076724  010337  102766            MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
13404 076730  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
13405 076734  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
13406 076740  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
13407 076744  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED
13408 076750  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
13409 076752  001406                    BEQ     28$                     ;BR, IF OK
13410 076754  005237  002212            INC     FATFLG                  ;BUMP COUNT
13414 076760                            ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      076760  104456                                                            TRAP    C$ERHRD
      076762  001306                                                            .WORD   710
      076764  005111                                                            .WORD   WRTERR
      076766  012136                                                            .WORD   PKTSSR
13415 076770                      28$:  CKLOOP                          ;LOOP IF SELECTED
      076770  104406                                                            TRAP    C$CLP1
13416
13417                           ;*************************************************************************
13418                           ;
13419                           ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
13420                           ;
13421                           ;*************************************************************************
13422
13423 076772  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
13424 076776  103411                    BCS     30$                     ;BR, IF NO PROBLEM
13425 077000  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
13426 077004  010004                    MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
13427 077006  005237  002212            INC     FATFLG                  ;BUMP COUNT
13431 077012                            ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      077012  104456                                                            TRAP    C$ERHRD
      077014  001307                                                            .WORD   711
      077016  104165                                                            .WORD   T27RWN
      077020  012136                                                            .WORD   PKTSSR
13432 077022                      30$:  CKLOOP                          ;LOOP IF SELECTED
      077022  104406                                                            TRAP    C$CLP1
13433
13434                           ;*************************************************************************
13435                           ;
```

TEST 7: WRITE DATA RETRY

```
13436                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
13437                                   ;
13438                                   ;*************************************************************************
13439
13440 077024  013701  102660                    MOV     T27BFR+6,R1             ;PICK UP XSTO
13441 077030  010102                            MOV     R1,R2                   ;SET UP EXPECTED
13442 077032  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
13443 077036  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
13444 077040  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
13445 077042  005237  002212                    INC     FATFLG                  ;BUMP COUNT
13449 077046                                    ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      077046  104456                                                                    TRAP    C$ERHRD
      077050  001310                                                                    .WORD   712
      077052  103661                                                                    .WORD   T27BOT
      077054  015564                                                                    .WORD   EXPREC
13450 077056                            40$:    CKLOOP                          ;LOOP IF SELECTED
      077056  104406                                                                    TRAP    C$CLP1
13451
13452                                   ;*************************************************************************
13453                                   ;
13454                                   ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
13455                                   ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
13456                                   ;
13457                                   ;*************************************************************************
13458
13459 077060  012703  000001                    MOV     #1,R3                   ;PARAMETER SPACE FORWARD 1 RECORD
13460 077064  004737  010556                    JSR     PC,SPACE                ;CALL SPACE RECORDS ROUTINE
13461 077070  103413                            BCS     50$                     ;BR, IF NO ERRORS
13462 077072  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
13463 077076  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
13464 077102  010004                            MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
13465 077104  005237  002212                    INC     FATFLG                  ;BUMP COUNT
13469 077110                                    ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE RECORDS COMMAND FAILED
      077110  104456                                                                    TRAP    C$ERHRD
      077112  001311                                                                    .WORD   713
      077114  105427                                                                    .WORD   T27SCF
      077116  012136                                                                    .WORD   PKTSSR
13470 077120                            50$:    CKLOOP                          ;LOOP IF SELECTED
      077120  104406                                                                    TRAP    C$CLP1
13471
13472                                   ;*************************************************************************
13473                                   ;
13474                                   ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
13475                                   ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
13476                                   ;
13477                                   ;*************************************************************************
13478
13479 077122  012703  100001                    MOV     #100001,R3              ;PARAMETER SPACE REVERSE 1 RECORD
13480 077126  004737  010556                    JSR     PC,SPACE                ;CALL SPACE RECORDS ROUTINE
13481 077132  103413                            BCS     60$                     ;BR, IF NO ERRORS
13482 077134  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
13483 077140  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
13484 077144  010004                            MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
13485 077146  005237  002212                    INC     FATFLG                  ;BUMP COUNT
13489 077152                                    ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE RECORDS COMMAND FAILED
      077152  104456                                                                    TRAP    C$ERHRD
      077154  001312                                                                    .WORD   714
```

TEST 7: WRITE DATA RETRY

```
        077156  105427                                                          .WORD   T27SCF
        077160  012136                                                          .WORD   PKTSSR
13490   077162                          60$:    CKLOOP                  ;LOOP IF SELECTED
        077162  104406                                                          TRAP    C$CLP1
13491   077164  013737  003114  102762          MOV     FREE,T27RB              ;ADDRESS OF BUFFER
13492
13493                                   ;*************************************************************************
13494                                   ;
13495                                   ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
13496                                   ;
13497                                   ;*************************************************************************
13498
13499   077172  012737  141005  102760          MOV     #141005,T27PK3          ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
13500   077200  012737  000400  102766          MOV     #256.,T27SZ             ;SET UP THE SIZE OF RECORD
13501   077206  012704  102760                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
13502   077212  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
13503   077216  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
13504   077222  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
13505   077226  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED TAPE STATUS ALERT
13506   077232  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
13507   077234  001406                          BEQ     180$                    ;BR, IF OK
13508   077236  005237  002212                  INC     FATFLG                  ;BUMP COUNT
13512   077242                                  ERRHRD  ERRNO,T27TSA,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
        077242  104456                                                          TRAP    C$ERHRD
        077244  001313                                                          .WORD   715
        077246  105504                                                          .WORD   T27TSA
        077250  012136                                                          .WORD   PKTSSR
13513   077252                          180$:   CKLOOP                  ;LOOP IF SELECTED
        077252  104406                                                          TRAP    C$CLP1
13514   077254  013701  102666                  MOV     T27BFR+14,R1            ;GET XST3 STATUS WORD
13515   077260  010102                          MOV     R1,R2                   ;SET UP EXPECTED
13516   077262  052702  000001                  BIS     #BIT0,R2                ;SET THE RIB BIT
13517   077266  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
13518   077270  001406                          BEQ     190$                    ;BR, IF EQUAL (GOOD)
13519   077272  005237  002212                  INC     FATFLG                  ;BUMP COUNT
13523   077276                                  ERRHRD  ERRNO,T27NEF,EXPREC     ;NEF SHOULD BE SET
        077276  104456                                                          TRAP    C$ERHRD
        077300  001314                                                          .WORD   716
        077302  105331                                                          .WORD   T27NEF
        077304  015564                                                          .WORD   EXPREC
13524   077306                          190$:   CKLOOP
        077306  104406                                                          TRAP    C$CLP1
13525   077310                          ENDSUB                  ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
        077310                                                          L10124:
        077310  104403                                                          TRAP    C$ESUB
13526   077312  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
13527   077320  103402                          BLO     999$                    ;BR, IF LESS THAN 25
13528   077322  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
13529   077326                          999$:
13530
13531                                   ;*
13532                                   ;
13533                                   ;TEST 7, SUBTEST 3
13534                                   ;
13535                                   ;VERIFIES THAT A WRITE DATA RETRY COMMAND WITH SWB=0
13536                                   ;TERMINATES PROPERLY AND WRITES CORRECT DATA ON TAPE
13537                                   ;(THE WRITTEN RECORD IS READ AND CHECKED). VARIOUS
```

TEST 7: WRITE DATA RETRY

```
13538                                   ;BYTE COUNTS AND DATA PATTERNS ARE USED.
13539                                   ;
13540                                   ;
13541                                   ;
13542                                   ;-
13543 077326                                    BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
       077326                                                                                   T7.3:
       077326  104402                                                                           TRAP    C$BSUB
13544 077330  004737  105764                    JSR     PC,T27REST              ;SET COMMAND PACKET
13545 077334  004737  106056                    JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
13546 077340  004737  106120                    JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
13547
13548                                   ;*************************************************************************
13549                                   ;
13550                                   ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
13551                                   ;
13552                                   ;*************************************************************************
13553
13554 077344  C04737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
13555 077350  103407                            BCS     20$                     ;BR IF INIT WAS OK
13556 077352  005237  002212                    INC     FATFLG                  ;BUMP COUNT
13560 077356  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
13561 077360                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
       077360  104455                                                                           TRAP    C$ERDF
       077362  001315                                                                           .WORD   717
       077364  003650                                                                           .WORD   SFIERR
       077366  012124                                                                           .WORD   SFIMSG
13562 077370  013737  002172  102650  20$:      MOV     UNITN,T27DSW            ;SET UP UNIT NUMBER IN PACKET
13563 077376  012704  102630                    MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
13564
13565                                   ;*************************************************************************
13566                                   ;
13567                                   ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
13568                                   ;
13569                                   ;*************************************************************************
13570
13571 077402  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
13572 077406  103407                            BCS     23$                     ;BR, IF COMMAND ISSUED OK
13573 077410  005237  002212                    INC     FATFLG                  ;BUMP COUNT
13577 077414  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
13578 077416                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
       077416  104456                                                                           TRAP    C$ERHRD
       077420  001316                                                                           .WORD   718
       077422  005054                                                                           .WORD   WRTMSG
       077424  012124                                                                           .WORD   SFIMSG
13579 077426                            23$:    CKLOOP                          ;LOOP IF SELECTED
       077426  104406                                                                           TRAP    C$CLP1
13580
13581                                   ;*************************************************************************
13582                                   ;
13583                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
13584                                   ;
13585                                   ;*************************************************************************
13586
13587 077430  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
13588 077434  103407                            BCS     30$                     ;BR, IF NO PROBLEM
13589 077436  010004                            MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
```

TEST 7: WRITE DATA RETRY

```
13590 077440  005237  002212          INC     FATFLG                  ;BUMP COUNT
13594 077444                          ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      077444  104456                                                          TRAP    C$ERHRD
      077446  001317                                                          .WORD   719
      077450  104165                                                          .WORD   T27RWN
      077452  012136                                                          .WORD   PKTSSR
13595 077454                    30$:  CKLOOP                          ;LOOP IF SELECTED
      077454  104406                                                          TRAP    C$CLP1
13596
13597                           ;*************************************************************************
13598                           ;
13599                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
13600                           ;
13601                           ;*************************************************************************
13602
13603 077456  013701  102660          MOV     T27BFR+6,R1             ;PICK UP XST0
13604 077462  010102                  MOV     R1,R2                   ;SET UP EXPECTED
13605 077464  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
13606 077470  C20102                  CMP     R1,R2                   ;DOES EXP = REC'D
13607 077472  001406                  BEQ     40$                     ;BR, IF EQUAL (OK)
13608 077474  005237  002212          INC     FATFLG                  ;BUMP COUNT
13612 077500                          ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      077500  104456                                                          TRAP    C$ERHRD
      077502  001320                                                          .WORD   720
      077504  103661                                                          .WORD   T27BOT
      077506  015564                                                          .WORD   EXPREC
13613 077510                    40$:  CKLOOP                          ;LOOP IF SELECTED
      077510  104406                                                          TRAP    C$CLP1
13614 077512  012703  000024          MOV     #20.,R3                 ;STARTING RECORD SIZE
13615 077516  013737  003114  102762  MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
13616
13617                           ;*************************************************************************
13618                           ;
13619                           ;WRITE DATA,CVC=1,ACK COMMAND
13620                           ;
13621                           ;*************************************************************************
13622
13623 077524  012737  140005  102760  65$:  MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
13624 077532  012704  102760          MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
13625 077536  010300                  MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
13626 077540  004737  017512          JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
13627 077544  010337  102766          MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
13628 077550  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
13629 077554  004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
13630 077560  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
13631 077564  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED
13632 077570  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
13633 077572  001406                  BEQ     80$                     ;BR, IF OK
13634 077574  005237  002212          INC     FATFLG                  ;BUMP COUNT
13638 077600                          ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      077600  104456                                                          TRAP    C$ERHRD
      077602  001321                                                          .WORD   721
      077604  005111                                                          .WORD   WRTERR
      077606  012136                                                          .WORD   PKTSSR
13639 077610                    80$:  CKLOOP                          ;LOOP IF SELECTED
      077610  104406                                                          TRAP    C$CLP1
13640
```

TEST 7: WRITE DATA RETRY

```
13641                                   ;*************************************************************************
13642                                   ;
13643                                   ;WRITE DATA RETRY,CVC=1,ACK COMMAND
13644                                   ;
13645                                   ;*************************************************************************
13646
13647 077612  012737  141005  102760          MOV     #141005,T27PK3          ;WRITE DATA RETRY,CVC=1,ACK COMMAND
13648 077620  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
13649 077624  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
13650 077630  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
13651 077634  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
13652 077640  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
13653 077642  001406                          BEQ     90$                     ;BR, IF OK
13654 077644  005237  002212                  INC     FATFLG                  ;BUMP COUNT
13658 077650                                  ERRHRD  ERRNO,T27WRF,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA RETRY
      077650  104456                                                                  TRAP    C$ERHRD
      077652  001322                                                                  .WORD   722
      077654  105566                                                                  .WORD   T27WRF
      077656  C12136                                                                  .WORD   PKTSSR
13659 077660                          90$:    CKLOOP                          ;LOOP IF SELECTED
      077660  104406                                                                  TRAP    C$CLP1
13660 077662  005723                          TST     (R3)+                   ;BUMP RECORD SIZE COUNTER
13661 077664  020327  000050                  CMP     R3,#40.                 ;AT 40 SIZE YET
13662 077670  001315                          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
13663
13664                                   ;*************************************************************************
13665                                   ;
13666                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
13667                                   ;
13668                                   ;*************************************************************************
13669
13670 077672  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
13671 077676  103407                          BCS     230$                    ;BR, IF NO PROBLEM
13672 077700  010001                          MOV     R0,R1                   ;SAVE TSSR
13673 077702  005237  002212                  INC     FATFLG                  ;BUMP COUNT
13677 077706                                  ERRHRD  ERRNO,T27RWN,EXPREC     ;REWIND NOT ACCEPTED
      077706  104456                                                                  TRAP    C$ERHRD
      077710  001323                                                                  .WORD   723
      077712  104165                                                                  .WORD   T27RWN
      077714  015564                                                                  .WORD   EXPREC
13678 077716                          230$:   CKLOOP                          ;LOOP IF SELECTED
      077716  104406                                                                  TRAP    C$CLP1
13679
13680                                   ;*************************************************************************
13681                                   ;
13682                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
13683                                   ;
13684                                   ;*************************************************************************
13685
13686 077720  013701  102660                  MOV     T27BFR+6,R1             ;PICK UP XST0
13687 077724  010102                          MOV     R1,R2                   ;SET UP EXPECTED
13688 077726  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
13689 077732  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
13690 077734  001406                          BEQ     240$                    ;BR, IF EQUAL (OK)
13691 077736  005237  002212                  INC     FATFLG                  ;BUMP COUNT
13695 077742                                  ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      077742  104456                                                                  TRAP    C$ERHRD
```

TEST 7: WRITE DATA RETRY

```
        077744  001324                                                          .WORD   724
        077746  103661                                                          .WORD   T27BOT
        077750  015564                                                          .WORD   EXPREC
 13696  077752                          240$:   CKLOOP                          ;LOOP IF SELECTED
        077752  104406                                                          TRAP    C$CLP1
 13697  077754  012703  000024                  MOV     #20.,R3                 ;STARTING RECORD SIZE
 13698  077760  013737  003114  102762          MOV     FREE,T27RB              ;STARTING READ BUFFER ADDRESS
 13699
 13700                          ;*****************************************************************
 13701                          ;
 13702                          ;READ DATA,ACK COMMAND
 13703                          ;
 13704                          ;*****************************************************************
 13705
 13706  077766  012737  100001  102760  265$:   MOV     #100001,T27PK3          ;READ DATA,ACK COMMAND
 13707  077774  012704  102760                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 13708  100000  010337  102766                  MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
 13709  100004  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 13710  100010  C04737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 13711  100014  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 13712  100020  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 13713  100024  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 13714  100026  001406                          BEQ     280$                    ;BR, IF OK
 13715  100030  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 13719  100034                                  ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
        100034  104456                                                          TRAP    C$ERHRD
        100036  001325                                                          .WORD   725
        100040  005204                                                          .WORD   RDERR
        100042  012136                                                          .WORD   PKTSSR
 13720  100044                          280$:   CKLOOP                          ;LOOP IF SELECTED
        100044  104406                                                          TRAP    C$CLP1
 13721  100046  013702  003114                  MOV     FREE,R2                 ;GET BUFFER ADDRESS
 13722  100052  010304                          MOV     R3,R4                   ;GET RECORD SIZE
 13723  100054  162704  000024                  SUB     #20.,R4                 ;POINT BACK TO 1ST RECORD
 13724  100060  060204                  285$:   ADD     R2,R4                   ;POINT TO 1ST LOC IN BUFFER
 13725  100062  021403                          CMP     (R4),R3                 ;DATA WRITTEN = READ
 13726  100064  001410                          BEQ     290$                    ;BR, IF DATA OK (GOOD)
 13727  100066  011401                          MOV     (R4),R1                 ;PICK UP BAD DATA
 13728  100070  010302                          MOV     R3,R2                   ;SET UP EXPECTED
 13729  100072  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 13733  100076                                  ERRHRD  ERRNO,T27DTA,EXPREC     ;DATA IN BUFFER NOT CORRECT
        100076  104456                                                          TRAP    C$ERHRD
        100100  001326                                                          .WORD   726
        100102  105646                                                          .WORD   T27DTA
        100104  015564                                                          .WORD   EXPREC
 13734  100106                          290$:   CKLOOP                          ;LOOP IF SELECTED
        100106  104406                                                          TRAP    C$CLP1
 13735  100110  005724                          TST     (R4)+                   ;BUMP TO NEXT ADDRESS
 13736  100112  160204                          SUB     R2,R4                   ;BACK TO RECORD SIZE
 13737  100114  020403                          CMP     R4,R3                   ;AT END OF RECORD YET
 13738  100116  001360                          BNE     285$                    ;BR, IF MORE DATA TO CHECK
 13739  100120  005723                          TST     (R3)+                   ;BUMP RECORD SIZE
 13740  100122  020327  000050                  CMP     R3,#40.                 ;DONE YET
 13741  100126  001317                          BNE     265$                    ;BR, IF NOT DONE YET (MORE READS)
 13742  100130                          300$:   CKLOOP                          ;LOOP IF SELECTED
        100130  104406                                                          TRAP    C$CLP1
 13743  100132                          330$:
```

```
100132                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
100132                                                                                  L10125:
100132  104403                                                                                  TRAP    C$ESUB
100134  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
100142  103402                          BLO     999$                            ;BR, IF LESS THAN 25
100144  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
100150                          999$:

                                ;+
                                ;
                                ;TEST 7, SUBTEST 4
                                ;
                                ;VERIFIES THAT A WRITE DATA RETRY COMMAND WITH SWB=1
                                ;TERMINATES PROPERLY AND WRITES CORRECT DATA ON TAPE
                                ;(THE WRITTEN RECORD IS READ AND CHECKED). VARIOUS
                                ;BYTE COUNTS AND DATA PATTERNS ARE USED.
                                ;
                                ;
                                ;
                                ;-
100150                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
100150                                                                                  T7.4:
100150  104402                                                                                  TRAP    C$BSUB
100152  004737  105764                  JSR     PC,T27REST              ;SET COMMAND PACKET
100156  004737  106056                  JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
100162  004737  106120                  JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
100166  012737  176750  103012          MOV     #65000.,T27DLY          ;SET UP DELAY COUNTER

                                ;*****************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                ;
                                ;*****************************************************************

100174  004737  016064          10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
100200  103426                          BCS     20$                     ;BR IF INIT WAS OK
100202                                  DELAY   250                     ;DELAY ABOUT .25 SEC
100202  012727  000250                                                                          MOV     #250,(PC)+
100206  000000                                                                                  .WORD   0
100210  013727  002116                                                                          MOV     L$DLY,(PC)+
100214  000000                                                                                  .WORD   0
100216  005367  177772                                                                          DEC     -6(PC)
100222  001375                                                                                  BNE     .-4
100224  005367  177756                                                                          DEC     -22(PC)
100230  001367                                                                                  BNE     .-20
100232  005337  103012                  DEC     T27DLY                  ;BUMP COUNTER
100236  001356                          BNE     10$                     ;BR, IF COUNTER NOT DONE
100240  005237  002212                  INC     FATFLG                  ;BUMP COUNT
100244  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
100246                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
100246  104455                                                                                  TRAP    C$ERDF
100250  001327                                                                                  .WORD   727
100252  003650                                                                                  .WORD   SFIERR
100254  012124                                                                                  .WORD   SFIMSG
100256  013737  002172  102650  20$:    MOV     UNITN,T27DSW            ;SET UP UNIT (DRIVE) NUMBER
100264  012704  102630                  MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
```

TEST 7: WRITE DATA RETRY

```
13788                                   ;*************************************************************************
13789                                   ;
13790                                   ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
13791                                   ;
13792                                   ;*************************************************************************
13793
13794 100270  004737  010752            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
13795 100274  103407                    BCS     23$                     ;BR, IF COMMAND ISSUED OK
13796 100276  005237  002212            INC     FATFLG                  ;BUMP COUNT
13800 100302  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
13801 100304                            ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      100304  104456                                                            TRAP    C$ERHRD
      100306  001330                                                            .WORD   728
      100310  005054                                                            .WORD   WRTMSG
      100312  012124                                                            .WORD   SFIMSG
13802 100314                    23$:    CKLOOP                          ;LOOP IF SELECTED
      100314  104406                                                            TRAP    C$CLP1
13803
13804                                   ;*************************************************************************
13805                                   ;
13806                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
13807                                   ;
13808                                   ;*************************************************************************
13809
13810 100316  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
13811 100322  103411                    BCS     30$                     ;BR, IF NO PROBLEM
13812 100324  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
13813 100330  010004                    MOV     R0,R4                   ;GET PACKET ADDRESS
13814 100332  005237  002212            INC     FATFLG                  ;BUMP COUNT
13818 100336                            ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      100336  104456                                                            TRAP    C$ERHRD
      100340  001331                                                            .WORD   729
      100342  104165                                                            .WORD   T27RWN
      100344  012136                                                            .WORD   PKTSSR
13819 100346                    30$:    CKLOOP                          ;LOOP IF SELECTED
      100346  104406                                                            TRAP    C$CLP1
13820
13821                                   ;*************************************************************************
13822                                   ;
13823                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
13824                                   ;
13825                                   ;*************************************************************************
13826
13827 100350  013701  102660            MOV     T27BFR+6,R1             ;PICK UP XST0
13828 100354  010102                    MOV     R1,R2                   ;SET UP EXPECTED
13829 100356  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
13830 100362  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
13831 100364  001406                    BEQ     40$                     ;BR, IF EQUAL (OK)
13832 100366  005237  002212            INC     FATFLG                  ;BUMP COUNT
13836 100372                            ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      100372  104456                                                            TRAP    C$ERHRD
      100374  001332                                                            .WORD   730
      100376  103661                                                            .WORD   T27BOT
      100400  015564                                                            .WORD   EXPREC
13837 100402                    40$:    CKLOOP                          ;LOOP IF SELECTED
      100402  104406                                                            TRAP    C$CLP1
13838 100404  012703  000024            MOV     #20.,R3                 ;STARTING RECORD SIZE
```

TEST 7: WRITE DATA RETRY

```
13839 100410  013737  003114  102762          MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
13840
13841                                 ;*************************************************************************
13842                                 ;
13843                                 ;WRITE DATA,CVC=1,ACK COMMAND
13844                                 ;
13845                                 ;*************************************************************************
13846
13847 100416  012737  140005  102760  65$:    MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
13848 100424  012704  102760                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
13849 100430  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
13850 100432  004737  017512                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
13851 100436  010337  102766                  MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
13852 100442  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
13853 100446  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
13854 100452  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
13855 100456  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
13856 100462  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
13857 100464  001406                          BEQ     80$                     ;BR, IF OK
13858 100466  005237  002212                  INC     FATFLG                  ;BUMP COUNT
13862 100472                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      100472  104456                                                                  TRAP    C$ERHRD
      100474  001333                                                                  .WORD   731
      100476  005111                                                                  .WORD   WRTERR
      100500  012136                                                                  .WORD   PKTSSR
13863 100502                          80$:     CKLOOP                          ;LOOP IF SELECTED
      100502  104406                                                                  TRAP    C$CLP1
13864
13865                                 ;*************************************************************************
13866                                 ;
13867                                 ;WRITE DATA RETRY,ACK,SWB=1 COMMAND
13868                                 ;
13869                                 ;*************************************************************************
13870
13871 100504  012737  111005  102760          MOV     #111005,T27PK3          ;WRITE DATA RETRY,ACK,SWB=1 COMMAND
13872 100512  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
13873 100516  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
13874 100522  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
13875 100526  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
13876 100532  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
13877 100534  001406                          BEQ     90$                     ;BR, IF OK
13878 100536  005237  002212                  INC     FATFLG                  ;BUMP COUNT
13882 100542                                  ERRHRD  ERRNO,T27WRF,EXPREC     ;TSSR INCORRECT AFTER WRITE DATA RETRY
      100542  104456                                                                  TRAP    C$ERHRD
      100544  001334                                                                  .WORD   732
      100546  105566                                                                  .WORD   T27WRF
      100550  015564                                                                  .WORD   EXPREC
13883 100552                          90$:     CKLOOP                          ;LOOP IF SELECTED
      100552  104406                                                                  TRAP    C$CLP1
13884 100554  005723                          TST     (R3)+                   ;BUMP RECORD SIZE COUNTER
13885 100556  020327  000050                  CMP     R3,#40.                 ;AT 40 SIZE YET
13886 100562  001315                          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
13887
13888                                 ;*************************************************************************
13889                                 ;
13890                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
13891                                 ;
```

```
                                        ;*****************************************************************
                                        ;
100564  004737  011104                          JSR     PC,REWIND                   ;CALL TAPE REWIND COMMAND
100570  103411                                  BCS     230$                        ;BR, IF NO PROBLEM
100572  016501  000002                          MOV     TSSR(R5),R1                 ;GET TSSR CONTENTS
100576  010004                                  MOV     R0,R4                       ;GET PACKET ADDRESS
100600  005237  002212                          INC     FATFLG                      ;BUMP COUNT
100604                                          ERRHRD  ERRNO,T27RWN,PKTSSR         ;REWIND NOT ACCEPTED
100604  104456                                                                                  TRAP    C$ERHRD
100606  001335                                                                                  .WORD   733
100610  104165                                                                                  .WORD   T27RWN
100612  012136                                                                                  .WORD   PKTSSR
100614                                  230$:   CKLOOP                              ;LOOP IF SELECTED
100614  104406                                                                                  TRAP    C$CLP1
                                        ;*****************************************************************
                                        ;
                                        ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
                                        ;
                                        ;*****************************************************************
100616  013701  102660                          MOV     T27BFR+6,R1                 ;PICK UP XSTO
100622  010102                                  MOV     R1,R2                       ;SET UP EXPECTED
100624  052702  000002                          BIS     #BIT1,R2                    ;SET BOT BIT IN EXPECTED
100630  020102                                  CMP     R1,R2                       ;DOES EXP = REC'D
100632  001406                                  BEQ     240$                        ;BR, IF EQUAL (OK)
100634  005237  002212                          INC     FATFLG                      ;BUMP COUNT
100640                                          ERRHRD  ERRNO,T27BOT,EXPREC         ;TAPE NOT AT BOT AFTER REWIND
100640  104456                                                                                  TRAP    C$ERHRD
100642  001336                                                                                  .WORD   734
100644  103661                                                                                  .WORD   T27BOT
100646  015564                                                                                  .WORD   EXPREC
100650                                  240$:   CKLOOP                              ;LOOP IF SELECTED
100650  104406                                                                                  TRAP    C$CLP1
100652  012703  000024                          MOV     #20.,R3                     ;STARTING RECORD SIZE
100656  013737  003114  102762                  MOV     FREE,T27RB                  ;STARTING READ BUFFER ADDRESS
                                        ;*****************************************************************
                                        ;
                                        ;READ DATA,ACK COMMAND
                                        ;
                                        ;*****************************************************************
100664  012737  100001  102760          265$:   MOV     #100001,T27PK3              ;READ DATA,ACK COMMAND
100672  012704  102760                          MOV     #T27PK3,R4                  ;SET UP R4 WITH PACKET ADDRESS
100676  010337  102766                          MOV     R3,T27SZ                    ;SET UP RECORD SIZE IN PACKET
100702  010465  000000                          MOV     R4,TSDB(R5)                 ;ISSUE COMMAND
100706  004737  016340                          JSR     PC,WAITF                    ;WAIT FOR SSR TO SET
100712  016501  000002                          MOV     TSSR(R5),R1                 ;GET TSSR CONTENTS
100716  012702  000200                          MOV     #SSR,R2                     ;SET UP EXPECTED
100722  020102                                  CMP     R1,R2                       ;ARE THEY EQUAL
100724  001406                                  BEQ     280$                        ;BR, IF OK
100726  005237  002212                          INC     FATFLG                      ;BUMP COUNT
100732                                          ERRHRD  ERRNO,RDERR,PKTSSR          ;TSSR INCORRECT AFTER READ DATA
100732  104456                                                                                  TRAP    C$ERHRD
100734  001337                                                                                  .WORD   735
100736  005204                                                                                  .WORD   RDERR
```

```
        100740  012136                                                                  .WORD   PKTSSR
  13945 100742                          280$:   CKLOOP                          ;LOOP IF SELECTED
        100742  104406                                                                  TRAP    C$CLP1
  13946 100744  013702  003114                  MOV     FREE,R2                 ;GET BUFFER ADDRESS
  13947 100750  010304                          MOV     R3,R4                   ;GET RECORD SIZE
  13948 100752  162704  000024                  SUB     #20.,R4                 ;POINT BACK TO 1ST RECORD
  13949 100756  060204                  285$:   ADD     R2,R4                   ;POINT TO 1ST LOC IN BUFFER
  13950 100760  000303                          SWAB    R3                      ;SWAP BYTES SWB=1 ETC.
  13951 100762  021403                          CMP     (R4),R3                 ;DATA WRITTEN = READ
  13952 100764  001410                          BEQ     290$                    ;BR, IF DATA OK (GOOD)
  13953 100766  011401                          MOV     (R4),R1                 ;PICK UP BAD DATA
  13954 100770  010302                          MOV     R3,R2                   ;SET UP EXPECTED
  13955 100772  005237  002212                  INC     FATFLG                  ;BUMP COUNT
  13959 100776                                  ERRHRD  ERRNO,T27DTA,EXPREC     ;DATA IN BUFFER NOT CORRECT
        100776  104456                                                                  TRAP    C$ERHRD
        101000  001340                                                                  .WORD   736
        101002  105646                                                                  .WORD   T27DTA
        101004  015564                                                                  .WORD   EXPREC
  13960 101006                          290$:   CKLOOP                          ;LOOP IF SELECTED
        101006  104406                                                                  TRAP    C$CLP1
  13961 101010  005724                          TST     (R4)+                   ;BUMP TO NEXT ADDRESS
  13962 101012  160204                          SUB     R2,R4                   ;BACK TO RECORD SIZE
  13963 101014  000303                          SWAB    R3                      ;PUT R3 BACK INTO SHAPE
  13964 101016  020403                          CMP     R4,R3                   ;AT END OF RECORD YET
  13965 101020  001356                          BNE     285$                    ;BR, IF MORE DATA TO CHECK
  13966 101022  005723                          TST     (R3)+                   ;BUMP RECORD SIZE
  13967 101024  020327  000046                  CMP     R3,#38.                 ;DONE YET
  13968 101030  001315                          BNE     265$                    ;BR, IF NOT DONE YET (MORE READS)
  13969 101032                          300$:   CKLOOP                          ;LOOP IF SELECTED
        101032  104406                                                                  TRAP    C$CLP1
  13970 101034                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        101034                                                                          L10126:
        101034  104403                                                                  TRAP    C$ESUB
  13971 101036  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
  13972 101044  103402                          BLO     999$                            ;BR, IF LESS THAN 25
  13973 101046  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
  13974 101052                          999$:
  13975
  13976                                 ;+
  13977                                 ;
  13978                                 ;TEST 7, SUBTEST 5
  13979                                 ;
  13980                                 ;VERIFIES THAT A WRITE DATA RETRY COMMAND IS
  13981                                 ;PERFORMING THE "ERASE" PART OF THE OPERATION BY
  13982                                 ;PERFORMING THE FOLLOWING SERIES OF STEPS.
  13983                                 ;
  13984                                 ;1.     THE TAPE IS REWOUND AND A SERIES OF RECORDS ARE
  13985                                 ;       WRITTEN WITH THE NORMAL WRITE DATA COMMAND. THIS
  13986                                 ;       SHOULD RESULT IN RECORDS SEPARATED BY THE
  13987                                 ;       STANDARD INTERRECORD GAP.
  13988                                 ;
  13989                                 ;2.     A PROGRAM TIMING VALUE IS CALIBRATED BY REWINDING
  13990                                 ;       THE TAPE AND THEN CONUTING THE NUMBER OF CYCLES
  13991                                 ;       THROUGH A PROGRAMMED LOOP REQUIRED TO SPACE OVER
  13992                                 ;       THE SERIES OF RECORDS WRITTEN IN PREVIOUS
  13993                                 ;       STEP
  13994                                 ;
```

```
                                        ;3.     THE TAPE IS AGAIN REWOUND AND THE SAME SERIES OF
                                        ;       RECORDS WRITTEN AGAIN, THIS TIME USING THE WRITE
                                        ;       DATA RETRY COMMAND. THIS SHOULD RESULT IN
                                        ;       RECORDS SEPARATED BY A LONG INTERRECORD GAP.
                                        ;
                                        ;4.     THE TAPE IS AGAIN REWOUND, THE SPACING COMMAND
                                        ;       ISSUED, AND THE NUMBER OF TIMMING LOOP CYCLES
                                        ;       COUNTED TO COMPLETE THE OPERATION.
                                        ;
                                        ;5.     THE TWO LOOP COUNTS ARE COMPARED, CHECKING TO SEE
                                        ;       THAT THEY DIFFER BY A SIGNIFICANT AMOUNT.
                                        ;
                                        ;
                                        ;
                                        ;
                                        ;
                                        ;-
101052                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
101052                                                                                  T7.5:
101052  104402                                                                                  TRAP    C$BSUB
101054  005037  002214                          CLR     INTRECV                 ;INTERRUPT INDICATOR
101060  005037  103006                          CLR     T27CNT                  ;TIMER FOR WRITE DATA SPACING
101064  005037  103010                          CLR     T27CNU                  ;TIMER FOR WRITE DATA RETRY SPACING
101070  004737  105764                          JSR     PC,T27REST              ;SET COMMAND PACKET
101074  004737  106056                          JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
101100  004737  106120                          JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
101104  012737  176750  103012                  MOV     #65000.,T27DLY          ;SET UP DELAY COUNTER

                                        ;*******************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*******************************************************************

101112  004737  016064                  10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
101116  103426                                  BCS     20$                     ;BR IF INIT WAS OK
101120                                          DELAY   250                     ;DELAY ABOUT .25 SEC
101120  012727  000250                                                                          MOV     #250,(PC)+
101124  000000                                                                                  .WORD   0
101126  013727  002116                                                                          MOV     L$DLY,(PC)+
101132  000000                                                                                  .WORD   0
101134  005367  177772                                                                          DEC     -6(PC)
101140  001375                                                                                  BNE     .-4
101142  005367  177756                                                                          DEC     -22(PC)
101146  001367                                                                                  BNE     .-20
101150  005337  103012                          DEC     T27DLY                  ;BUMP COUNTER
101154  001356                                  BNE     10$                     ;BR, IF COUNTER NOT DONE
101156  005237  002212                          INC     FATFLG                  ;BUMP COUNT
101162  010001                                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
101164                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
101164  104455                                                                                  TRAP    C$ERDF
101166  001341                                                                                  .WORD   737
101170  003650                                                                                  .WORD   SFIERR
101172  012124                                                                                  .WORD   SFIMSG
101174  013737  002172  102650          20$:    MOV     UNITN,T27DSW            ;SET UP UNIT NUMBER

101202  012704  102630                          MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
```

TEST 7: WRITE DATA RETRY

```
14041
14042                           ;*************************************************************************
14043                           ;
14044                           ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
14045                           ;
14046                           ;*************************************************************************
14047
14048 101206  004737  010752            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
14049 101212  103407                    BCS     23$                     ;BR, IF COMMAND ISSUED OK
14050 101214  005237  002212            INC     FATFLG                  ;BUMP COUNT
14054 101220  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
14055 101222                            ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      101222  104456                                                            TRAP    C$ERHRD
      101224  001342                                                            .WORD   738
      101226  005054                                                            .WORD   WRTMSG
      101230  012124                                                            .WORD   SFIMSG
14056 101232                    23$:    CKLOOP                          ;LOOP IF SELECTED
      101232  104406                                                            TRAP    C$CLP1
14057
14058                           ;*************************************************************************
14059                           ;
14060                           ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
14061                           ;
14062                           ;*************************************************************************
14063
14064 101234  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
14065 101240  103411                    BCS     30$                     ;BR, IF NO PROBLEM
14066 101242  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
14067 101246  010004                    MOV     R0,R4                   ;GET PACKET ADDRESS
14068 101250  005237  002212            INC     FATFLG                  ;BUMP COUNT
14072 101254                            ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      101254  104456                                                            TRAP    C$ERHRD
      101256  001343                                                            .WORD   739
      101260  104165                                                            .WORD   T27RWN
      101262  012136                                                            .WORD   PKTSSR
14073 101264                    30$:    CKLOOP                          ;LOOP IF SELECTED
      101264  104406                                                            TRAP    C$CLP1
14074
14075                           ;*************************************************************************
14076                           ;
14077                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
14078                           ;
14079                           ;*************************************************************************
14080
14081 101266  013701  102660            MOV     T27BFR+6,R1             ;PICK UP XST0
14082 101272  010102                    MOV     R1,R2                   ;SET UP EXPECTED
14083 101274  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
14084 101300  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
14085 101302  001406                    BEQ     40$                     ;BR, IF EQUAL (OK)
14086 101304  005237  002212            INC     FATFLG                  ;BUMP COUNT
14090 101310                            ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      101310  104456                                                            TRAP    C$ERHRD
      101312  001344                                                            .WORD   740
      101314  103661                                                            .WORD   T27BOT
      101316  015564                                                            .WORD   EXPREC
14091 101320                    40$:    CKLOOP                          ;LOOP IF SELECTED
      101320  104406                                                            TRAP    C$CLP1
```

TEST 7: WRITE DATA RETRY

```
14092 101322  012703  000144              MOV     #100.,R3                ;NUMBER OF RECORDS TO BE WRITTEN
14093 101326  013737  003114  102762      MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
14094
14095                                     ;*************************************************************************
14096                                     ;
14097                                     ;WRITE DATA,ACK,CVC=1 COMMAND
14098                                     ;
14099                                     ;*************************************************************************
14100
14101 101334  012737  140005  102760  65$:  MOV     #140005,T27PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
14102 101342  012704  102760              MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
14103 101346  012737  000024  102766      MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
14104 101354  010465  000000              MOV     R4,TSD8(R5)             ;ISSUE COMMAND
14105 101360  004737  016340              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
14106 101364  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
14107 101370  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED
14108 101374  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
14109 101376  001406                      BEQ     70$                     ;BR, IF OK
14110 101400  C05237  002212              INC     FATFLG                  ;BUMP COUNT
14114 101404                              ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      101404  104456                                                                  TRAP    C$ERHRD
      101406  001345                                                                  .WORD   741
      101410  005111                                                                  .WORD   WRTERR
      101412  012136                                                                  .WORD   PKTSSR
14115 101414                        70$:  CKLOOP                          ;LOOP IF SELECTED
      101414  104406                                                                  TRAP    C$CLP1
14116 101416  005303                      DEC     R3                      ;DEC RECORD COUNTER
14117 101420  001345                      BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
14118
14119                                     ;*************************************************************************
14120                                     ;
14121                                     ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
14122                                     ;
14123                                     ;*************************************************************************
14124
14125 101422  004737  011104              JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
14126 101426  103411                      BCS     130$                    ;BR, IF NO PROBLEM
14127 101430  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
14128 101434  010004                      MOV     R0,R4                   ;GET PACKET ADDRESS
14129 101436  005237  002212              INC     FATFLG                  ;BUMP COUNT
14133 101442                              ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      101442  104456                                                                  TRAP    C$ERHRD
      101444  001346                                                                  .WORD   742
      101446  104165                                                                  .WORD   T27RWN
      101450  012136                                                                  .WORD   PKTSSR
14134 101452                        130$: CKLOOP                          ;LOOP IF SELECTED
      101452  104406                                                                  TRAP    C$CLP1
14135
14136                                     ;*************************************************************************
14137                                     ;
14138                                     ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
14139                                     ;
14140                                     ;*************************************************************************
14141
14142 101454  013701  102660              MOV     T27BFR+6,R1             ;PICK UP XST0
14143 101460  010102                      MOV     R1,R2                   ;SET UP EXPECTED
14144 101462  052702  000002              BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
```

TEST 7: WRITE DATA RETRY

```
14145 101466 020102                    CMP     R1,R2                   ;DOES EXP = REC'D
14146 101470 001406                    BEQ     140$                    ;BR, IF EQUAL (OK)
14147 101472 005237 002212             INC     FATFLG                  ;BUMP COUNT
14151 101476                           ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      101476 104456                                                            TRAP    C$ERHRD
      101500 001347                                                            .WORD   743
      101502 103661                                                            .WORD   T27BOT
      101504 015564                                                            .WORD   EXPREC
14152 101506                    140$:  CKLOOP                          ;LOOP IF SELECTED
      101506 104406                                                            TRAP    C$CLP1
14153 101510 012704 102760             MOV     #T27PK3,R4              ;SET UP PACKET ADDRESS
14154 101514 012737 000010 102762      MOV     #10,T27RB               ;SET UP RECORDS TO SPACE OVER
14155
14156                          ;*************************************************************************
14157                          ;
14158                          ;ACK,CVC=1,SPACE FORWARD COMMAND
14159                          ;
14160                          ;*************************************************************************
14161
14162 101522 012737 140010 102760       MOV     #140010,T27PK3          ;ACK,CVC=1,SPACE FORWARD COMMAND
14163 101530 010465 000000     150$:   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
14164 101534 005237 103006     152$:   INC     T27CNT                  ;BUMP TIMER
14165 101540                           DELAY   1                       ;DELAY ABOUT 100US
      101540 012727 000001                                                     MOV     #1,(PC)+
      101544 000000                                                            .WORD   0
      101546 013727 002116                                                     MOV     L$DLY,(PC)+
      101552 000000                                                            .WORD   0
      101554 005367 177772                                                     DEC     -6(PC)
      101560 001375                                                            BNE     .-4
      101562 005367 177756                                                     DEC     -22(PC)
      101566 001367                                                            BNE     .-20
14166 101570 016501 000002             MOV     TSSR(R5),R1             ;GET TSSR
14167 101574 032701 000200             BIT     #BIT7,R1                ;CHECK FOR TSSR'S SSR SET
14168 101600 001755                    BEQ     152$                    ;KEEP COUNTING UNTIL SET
14169 101602 016501 000002             MOV     TSSR(R5),R1             ;GET STATUS FROM TSSR
14170 101606 012702 000200             MOV     #SSR,R2                 ;SET UP EXPECTED
14171 101612 020201                    CMP     R2,R1                   ;WAS EVERYTHING OK
14172 101614 001406                    BEQ     160$                    ;BR, IF ALL IS WELL
14173 101616 005237 002212             INC     FATFLG                  ;BUMP COUNT
14177 101622                           ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE FORWARD DIDN'T WORK OUT
      101622 104456                                                            TRAP    C$ERHRD
      101624 001350                                                            .WORD   744
      101626 105427                                                            .WORD   T27SCF
      101630 012136                                                            .WORD   PKTSSR
14178 101632                    160$:  CKLOOP                          ;LOOP IF SELECTED
      101632 104406                                                            TRAP    C$CLP1
14179
14180                          ;*************************************************************************
14181                          ;
14182                          ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
14183                          ;
14184                          ;*************************************************************************
14185
14186 101634 004737 011104             JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
14187 101640 004737 016426             JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
14188 101644 103407                    BCS     170$                    ;BR, IF NO PROBLEM
14189 101646 010001                    MOV     R0,R1                   ;SAVE TSSR
```

TEST 7: WRITE DATA RETRY

```
14190 101650  005237  002212                  INC     FATFLG                  ;BUMP COUNT
14194 101654                                  ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      101654  104456                                                          TRAP    C$ERHRD
      101656  001351                                                          .WORD   745
      101660  104165                                                          .WORD   T27RWN
      101662  012136                                                          .WORD   PKTSSR
14195 101664                          170$:   CKLOOP                          ;LOOP IF SELECTED
      101664  104406                                                          TRAP    C$CLP1
14196
14197                                 ;*************************************************************************
14198                                 ;
14199                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
14200                                 ;
14201                                 ;*************************************************************************
14202
14203 101666  013701  102660                  MOV     T27BFR+6,R1             ;PICK UP XST0
14204 101672  010102                          MOV     R1,R2                   ;SET UP EXPECTED
14205 101674  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
14206 101700  C20102                          CMP     R1,R2                   ;DOES EXP = REC'D
14207 101702  001406                          BEQ     175$                    ;BR, IF EQUAL (OK)
14208 101704  005237  002212                  INC     FATFLG                  ;BUMP COUNT
14212 101710                                  ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      101710  104456                                                          TRAP    C$ERHRD
      101712  001352                                                          .WORD   746
      101714  103661                                                          .WORD   T27BOT
      101716  015564                                                          .WORD   EXPREC
14213 101720                          175$:   CKLOOP                          ;LOOP IF SELECTED
      101720  104406                                                          TRAP    C$CLP1
14214 101722  012703  000144                  MOV     #100.,R3                ;STARTING RECORD SIZE
14215 101726  013737  003114  102762  177$:   MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
14216
14217                                 ;*************************************************************************
14218                                 ;
14219                                 ;WRITE DATA,CVC=1,ACK COMMAND
14220                                 ;
14221                                 ;*************************************************************************
14222
14223 101734  012737  140005  102760          MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
14224 101742  012704  102760                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
14225 101746  012737  000024  102766          MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
14226 101754  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
14227 101760  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
14228 101764  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
14229 101770  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
14230 101774  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
14231 101776  001406                          BEQ     180$                    ;BR, IF OK
14232 102000  005237  002212                  INC     FATFLG                  ;BUMP COUNT
14236 102004                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      102004  104456                                                          TRAP    C$ERHRD
      102006  001353                                                          .WORD   747
      102010  005111                                                          .WORD   WRTERR
      102012  012136                                                          .WORD   PKTSSR
14237 102014                          180$:   CKLOOP                          ;LOOP IF SELECTED
      102014  104406                                                          TRAP    C$CLP1
14238 102016  005303                          DEC     R3                      ;COUNT NUMBER OF RECORDS
14239 102020  001342                          BNE     177$                    ;BR, IF MORE RECORDS TO WRITE
14240
```

TEST 7: WRITE DATA RETRY

```
14241                                   ;*************************************************************************
14242                                   ;
14243                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
14244                                   ;
14245                                   ;*************************************************************************
14246
14247 102022  004737  011104                    JSR     PC,REWIND               ;ISSUE REWIND
14248 102026  103411                            BCS     182$                    ;BR, IF ALL IS WELL
14249 102030  010004                            MOV     R0,R4                   ;GET PACKET ADDRESS
14250 102032  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
14251 102036  005237  002212                    INC     FATFLG                  ;BUMP COUNT
14255 102042                                    ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND FAILED
      102042  104456                                                                    TRAP    C$ERHRD
      102044  001354                                                                    .WORD   748
      102046  104165                                                                    .WORD   T27RWN
      102050  012136                                                                    .WORD   PKTSSR
14256 102052                            182$:   CKLOOP                          ;SELECT LOOP MAYBE
      102052  104406                                                                    TRAP    C$CLP1
14257
14258                                   ;*************************************************************************
14259                                   ;
14260                                   ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
14261                                   ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
14262                                   ;
14263                                   ;*************************************************************************
14264
14265 102054  012703  000001                    MOV     #1.,R3                  ;SPACE 1 RECORD FORWARD
14266 102060  004737  010556                    JSR     PC,SPACE                ;ISSUE SPACE COMMAND
14267 102064  103411                            BCS     185$                    ;BR, IF COMMAND OK
14268 102066  010004                            MOV     R0,R4                   ;GET PACKET ADDRESS
14269 102070  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR STATUS
14270 102074  005237  002212                    INC     FATFLG                  ;BUMP COUNT
14274 102100                                    ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE FORWARD COMMAND FAILED
      102100  104456                                                                    TRAP    C$ERHRD
      102102  001355                                                                    .WORD   749
      102104  105427                                                                    .WORD   T27SCF
      102106  012136                                                                    .WORD   PKTSSR
14275 102110                            185$:   CKLOOP                          ;LOOP IF SELECTED
      102110  104406                                                                    TRAP    C$CLP1
14276 102112  012703  000144                    MOV     #100.,R3                ;NUMBER OF RECORDS TO BE WRITTEN
14277 102116  013737  003114  102762            MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
14278
14279                                   ;*************************************************************************
14280                                   ;
14281                                   ;WRITE DATA RETRY,ACK COMMAND
14282                                   ;
14283                                   ;*************************************************************************
14284
14285 102124  012737  101005  102760  190$:   MOV     #101005,T27PK3          ;WRITE DATA RETRY,ACK COMMAND
14286 102132  012704  102760                    MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
14287 102136  012737  000024  102766            MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
14288 102144  010465  000000                    MOV     R4,TSD8(R5)             ;ISSUE COMMAND
14289 102150  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
14290 102154  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
14291 102160  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
14292 102164  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
14293 102166  001406                            BEQ     200$                    ;BR, IF OK
```

TEST 7: WRITE DATA RETRY

```
14294 102170  005237  002212          INC     FATFLG                  ;BUMP COUNT
14298 102174                          ERRHRD  ERRNO,T27WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      102174  104456                                                          TRAP    C$ERHRD
      102176  001356                                                          .WORD   750
      102200  104521                                                          .WORD   T27WDC
      102202  012136                                                          .WORD   PKTSSR
14299 102204                    200$: CKLOOP                          ;LOOP IF SELECTED
      102204  104406                                                          TRAP    C$CLP1
14300 102206  013737  003114  102762          MOV     FREE,T27WB      ;STARTING WRITE BUFFER ADDRESS
14301
14302                         ;*****************************************************************
14303                         ;
14304                         ;WRITE DATA,CVC=1,ACK COMMAND
14305                         ;
14306                         ;*****************************************************************
14307
14308 102214  012737  140005  102760          MOV     #140005,T27PK3  ;WRITE DATA,CVC=1,ACK COMMAND
14309 102222  012704  102760                  MOV     #T27PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
14310 102226  012737  000024  102766          MOV     #20.,T27SZ      ;SET UP RECORD SIZE IN PACKET
14311 102234  010465  000000                  MOV     R4,TSDB(R5)     ;ISSUE COMMAND
14312 102240  004737  016340                  JSR     PC,WAITF        ;WAIT FOR SSR TO SET
14313 102244  016501  000002                  MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
14314 102250  012702  000200                  MOV     #SSR,R2         ;SET UP EXPECTED
14315 102254  020102                          CMP     R1,R2           ;ARE THEY EQUAL
14316 102256  001406                          BEQ     210$            ;BR, IF OK
14317 102260  005237  002212                  INC     FATFLG          ;BUMP COUNT
14321 102264                          ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      102264  104456                                                          TRAP    C$ERHRD
      102266  001357                                                          .WORD   751
      102270  005111                                                          .WORD   WRTERR
      102272  012136                                                          .WORD   PKTSSR
14322 102274                    210$: CKLOOP                          ;LOOP IF SELECTED
      102274  104406                                                          TRAP    C$CLP1
14323 102276  005303                          DEC     R3              ;BUMP DOWN RECORD COUNTER
14324 102300  001311                          BNE     190$            ;BR, IF MORE RECORDS TO WRITE RETRY
14325
14326                         ;*****************************************************************
14327                         ;
14328                         ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
14329                         ;
14330                         ;*****************************************************************
14331
14332 102302  004737  011104                  JSR     PC,REWIND       ;CALL TAPE REWIND COMMAND
14333 102306  103411                          BCS     230$            ;BR, IF NO PROBLEM
14334 102310  016501  000002                  MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
14335 102314  010004                          MOV     R0,R4           ;GET PACKET ADDRESS
14336 102316  005237  002212                  INC     FATFLG          ;BUMP COUNT
14340 102322                          ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      102322  104456                                                          TRAP    C$ERHRD
      102324  001360                                                          .WORD   752
      102326  104165                                                          .WORD   T27RWN
      102330  012136                                                          .WORD   PKTSSR
14341 102332                    230$: CKLOOP                          ;LOOP IF SELECTED
      102332  104406                                                          TRAP    C$CLP1
14342
14343                         ;*****************************************************************
14344                         ;
```

TEST 7: WRITE DATA RETRY

```
14345                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
14346                                   ;
14347                                   ;*************************************************************************
14348
14349 102334  013701  102660                    MOV     T27BFR+6,R1             ;PICK UP XSTO
14350 102340  010102                            MOV     R1,R2                   ;SET UP EXPECTED
14351 102342  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
14352 102346  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
14353 102350  001406                            BEQ     240$                    ;BR, IF EQUAL (OK)
14354 102352  005237  002212                    INC     FATFLG                  ;BUMP COUNT
14358 102356                                    ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      102356  104456                                                                    TRAP    C$ERHRD
      102360  001361                                                                    .WORD   753
      102362  103661                                                                    .WORD   T27BOT
      102364  015564                                                                    .WORD   EXPREC
14359 102366                            240$:   CKLOOP                          ;LOOP IF SELECTED
      102366  104406                                                                    TRAP    C$CLP1
14360 102370  012704  102760                    MOV     #T27PK3,R4              ;SET UP PACKET ADDRESS
14361 102374  C12737  000010  102762            MOV     #10,T27RB               ;SET UP RECORDS TO SPACE OVER
14362
14363                                   ;*************************************************************************
14364                                   ;
14365                                   ;ACK,CVC=1,SPACE FORWARD COMMAND
14366                                   ;
14367                                   ;*************************************************************************
14368
14369 102402  012737  140010  102760            MOV     #140010,T27PK3          ;ACK,CVC=1,SPACE FORWARD COMMAND
14370 102410  010465  000000          250$:     MOV     R4,TSDB(R5)             ;ISSUE COMMAND
14371 102414  005237  103010          252$:     INC     T27CNU                  ;BUMP TIMER
14372 102420                                    DELAY   1                       ;DELAY ABOUT 100US
      102420  012727  000001                                                            MOV     #1,(PC)+
      102424  000000                                                                    .WORD   0
      102426  013727  002116                                                            MOV     L$DLY,(PC)+
      102432  000000                                                                    .WORD   0
      102434  005367  177772                                                            DEC     -6(PC)
      102440  001375                                                                    BNE     .-4
      102442  005367  177756                                                            DEC     -22(PC)
      102446  001367                                                                    BNE     .-20
14373 102450  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR
14374 102454  032701  000200                    BIT     #BIT7,R1                ;CHECK FOR TSSR'S SSR SET
14375 102460  001755                            BEQ     252$                    ;KEEP COUNTING UNTIL SET
14376 102462  016501  000002                    MOV     TSSR(R5),R1             ;GET STATUS FROM TSSR
14377 102466  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
14378 102472  020201                            CMP     R2,R1                   ;WAS EVERYTHING OK
14379 102474  001406                            BEQ     260$                    ;BR, IF ALL IS WELL
14380 102476  005237  002212                    INC     FATFLG                  ;BUMP COUNT
14384 102502                                    ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE FORWARD DIDN'T WORK OUT
      102502  104456                                                                    TRAP    C$ERHRD
      102504  001362                                                                    .WORD   754
      102506  105427                                                                    .WORD   T27SCF
      102510  012136                                                                    .WORD   PKTSSR
14385 102512                            260$:   CKLOOP                          ;LOOP IF SELECTED
      102512  104406                                                                    TRAP    C$CLP1
14386 102514  013701  103006                    MOV     T27CNT,R1               ;TIME FOR WRITE SPACING
14387 102520  013702  103010                    MOV     T27CNU,R2               ;TIME FOR WRITE RETRY SPACING
14388 102524  160102                            SUB     R1,R2                   ;GET'EM PRETTY CLOSE
14389 102526  160102                            SUB     R1,R2                   ;GET'EM PRETTY CLOSE
```

```
TEST  7: WRITE DATA RETRY

14390 102530 160102                    SUB     R1,R2                   ;GET'EM PRETTY CLOSE
14391 102532 042702 000077             BIC     #77,R2                  ;CLEAR LOW 6 BITS
14392 102536 042701 000777             BIC     #000777,R1              ;SETTING UP CONSTANTS
14393 102542 020102                    CMP     R1,R2                   ;CHECK FOR DIFFERENCE
14394 102544 002006                    BGE     300$                    ;BR, IF GOOD 0000 CHECK 0000
14395 102546 005237 002212             INC     FATFLG                  ;BUMP COUNT
14399 102552                           ERRHRD  ERRNO,T27TIM,EXPREC     ;TIME WAS NOT DIFFERENT ENOUGH
      102552 104456                                                            TRAP    C$ERHRD
      102554 001363                                                            .WORD   755
      102556 103754                                                            .WORD   T27TIM
      102560 015564                                                            .WORD   EXPREC
14400 102562                    300$:  CKLOOP                          ;LOOP IF SELECTED
      102562 104406                                                            TRAP    C$CLP1
14401 102564                           ENDSUB                          ;<<<<<<<<<<<<< END SUBTEST >>>>>>>>>>>>>
      102564                                                                 L10127:
      102564 104403                                                            TRAP    C$ESUB
14402 102566 023727 002212 000017      CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
14403 102574 103402                    BLO     999$                            ;BR, IF LESS THAN 25
14404 102576 C04737 017272             JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
14405 102602                    999$:
14406                           ;
14407                           ;
14408                           ;
14409 102602 004737 016546             JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
14410 102606 103002                    BCC     163$                    ;BR, IF NO LOOP REQUIRED
14411 102610 000137 076146             JMP     T27LOOP                 ;EXECUTE AGAIN
14412 102614                    163$:
14413 102614                           EXIT    TST                     ;ALL DONE THIS TEST
      102614 104432                                                            TRAP    C$EXIT
      102616 003324                                                            .WORD   L10122-.
14414
14415                           ;+
14416                           ;LOCAL STORAGE FOR THIS TEST
14417                           ;-
14419 102620                           .BLKB   10-<.-TSV2&7>
14421 102630                    T27PACKET:                              ;COMMAND PACKET FOR TEST
14422 102630 100004                    .WORD   100004                  ;WRITE CHARACTERISTICS COMMAND, WITH . ACK
14423 102632 102640                    .WORD   T27DATA                 ;ADDRESS OF CHARACTERISTICS BLOCK
14424 102634 000000                    .WORD   0
14425 102636 000012                    .WORD   10.                     ;STARTING VALUE OF BLOCK SIZE
14426 102640                    T27DATA:                                ;CHARACTERISTICS DATA BLOCK
14427 102640 102652                    .WORD   T27BFR                  ;ADDRESS OF MESSAGE BUFFER
14428 102642 000000                    .WORD   0
14429 102644 000024                    .WORD   20.                     ;LENGTH OF MESSAGE BUFFER
14430 102646 000000                    .WORD   0
14431 102650 000000             T27DSW: .WORD   0                       ;SELECT DRIVE 0
14432 102652                    T27BFR: .BLKW   25.                     ;MESSAGE BUFFER
14433                           ;
14434                           ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
14435                           ;
14437 102734                           .BLKB   10-<.-TSV2&7>
14439 102740                    T27PK2:
14440 102740 100006                    .WORD   100006                  ;WRITE SUB SYS MEM COMMAND,  AND ACK
14441 102742 102770                    .WORD   T27BF2                  ;ADDRESS OF SELECT BLOCK DATA
14442 102744 000000                    .WORD   0
14443 102746 000006                    .WORD   6.                      ;SIZE OF DATA PACKET
14444
```

TEST 7: WRITE DATA RETRY

```
14446 102750                            .BLKB   10-<.-TSV2&7>
14448 102760                    T27PK3:
14449 102760  100005                    .WORD   100005                  ;REREAD COMMAND, AND ACK
14450 102762                    T27RB:
14451 102762  003114              T27WB:  .WORD   FREE                    ;ADDRESS OF WRITE BUFFER
14452 102764  000000                    .WORD   0
14453 102766  000000              T27SZ:  .WORD   0                       ;SIZE OF BUFFER (EXTENT)
14454                                   .EVEN
14455                                   ;
14456                                   ;
14457                                   ;
14458 102770                    T27BF2:
14459 102770     010            T27BS0: .BYTE   10                      ;BSEL0 AREA
14460 102771     200            T27BS1: .BYTE   200                     ;BSEL1 AREA
14461 102772  000000              T27S2:  .WORD   0                       ;SEL 2 AREA
14462 102774  000000              T27S3:  .WORD   0                       ;DATA AREA
14463                                   ;
14464                                   ;
14465                                   .EVEN
14466                           ;TAPE MOTION PACKET COMMAND VALUES
14467
14468 102776  100205              T27RN:  .WORD   100205                  ;REREAD DATA (NEXT)
14469 103000  100605              T27WDR: .WORD   100605                  ;REREAD DATA RETRY
14470 103002  102205              T27CON: .WORD   102205                  ;WRITE CONTINOUS
14471 103004  177777                      .WORD   177777                  ;END OF DATA
14472
14473                                   ;
14474 103006  000000              T27CNT: .WORD   0                       ;TAPE TIMER COUNTER STORAGE AREA
14475 103010  000000              T27CNU: .WORD   0                       ;TAPE TIMER COUNTER STORAGE AREA
14476 103012  000000              T27DLY: .WORD   0                       ;DELAY COUNTER
14477
14478
14479                                   ;*
14480                           ;LOCAL TEXT MESSAGES FOR TEST
14481                                   ;-
14482
14483
14484 103014     124     141     160    T27WNG: .ASCIZ  'Tape Position Incorrect After REREAD Previous (OPP=1)'
14485 103102     124     123     123    T27RDF: .ASCIZ  'TSSR Incorrect After READ DATA Command'
14486 103151     122     105     122    T27RRF: .ASCIZ  'REREAD Previous (Space Reverse, Read Forward) Command Failed'
14487 103246     120     117     123    T27SC:  .ASCIZ  'POSITION (Space Command) Failed, TSSR Not Correct'
14488 103330     122     111     102    T27LOR: .ASCIZ  'RIB NOT SET AFTER READ REVERSE INTO BOT'
14489 103400     124     123     123    T27WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
14490 103455     111     154     154    T27LOQ: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
14491 103536     122     105     122    T27SSR: .ASCIZ  'REREAD COMMAND Not Accepted'
14492 103572     124     123     123    T27WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY Command,At BOT'
14493 103661     124     141     160    T27BOT: .ASCIZ  'Tape Not At BOT After REWIND Command (BOT Not Set In XSTO)'
14494 103754     127     122     111    T27TIM: .ASCIZ  'WRITE DATA RETRY''S Erase Tape Not Long Enough'
14495 104031     122     105     122    T27EOT: .ASCIZ  'REREAD DATA OVER EOT GAVE NO TAPE STATUS ALERT'
14496 104110     124     123     123    T27TM:  .ASCIZ  'TSSR Not Correct After REREAD COMMAND Reject'
14497 104165     122     145     167    T27RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
14498 104234     122     101     115    T27RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
14499 104307     124     123     123    T27AM3: .ASCIZ  'TSSR Init. Failed After REREAD COMMAND'
14500 104356     104     162     151    T27OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
14501 104431     124     123     123    T27WDD: .ASCIZ  'TSSR Not Correct After REREAD DATA Command, SWB Bit Set'
14502 104521     124     123     123    T27WDC: .ASCIZ  'TSSR Not Correct After REREAD DATA Command'
14503 104574     103     126     103    T27VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
```

```
104647     124     123     102  T27BA:  .ASCIZ  'TSBA Not Correct After REREAD DATA Command'
104722     127     122     111  T27WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
105011     122     145     141  T27LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XST0'
105073     122     145     141  T27LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XST0'
105155     122     145     163  T27PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
105243     122     145     141  T27TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert'
105331     127     122     111  T27NEF: .ASCIZ  'WRITE DATA RETRY, At First Record, Failed To Set RIB Bit XST3'
105427     124     123     123  T27SCF: .ASCIZ  'TSSR Not Correct After SPACE RECORDS Command'
105504     124     123     123  T27TSA: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY, Into BOT'
105566     124     123     123  T27WRF: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY Command'
105646     104     141     164  T27DTA: .ASCIZ  'Data Compare Error, Data Read From Tape Not Equal To Written'
105743     127     162     151  TST27ID:        .ASCIZ  'Write Data Retry'
                                        .EVEN
                                ;+
                                ;
                                ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
                                ;WRITE SUBSYSTEM MEMORY COMMAND
                                ;
                                ;-

105764                          T27REST:
105764                                  SAVREG                          ;SAVE THE REGISTERS
105770  012701  102630                  MOV     #T27PACKET,R1           ;START OF THE PACKET
105774  012721  100004                  MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
106000  012721  102640                  MOV     #T27DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
106004  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
106006  012721  000012                  MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
106012  012721  102652                  MOV     #T27BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
106016  005021                          CLR     (R1)+
106020  012721  000024                  MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
106024  005021                          CLR     (R1)+
106026  012711  000000                  MOV     #0,(R1)                 ;SELECT DRIVE ZERO
106032  012702  000030                  MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
106036  012762  177777  102652  64$:    MOV     #177777,T27BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
106044  005742                          TST     -(R2)                   ;NEXT LOCATION
106046  022702  000000                  CMP     #0,R2                   ;AT END OF LOOP YET
106052  001371                          BNE     64$                     ;KEEP GOING UNTIL DONE
106054  000207                          RTS     PC                      ;RETURN


106056                          T27RT2:
106056                                  SAVREG                          ;SAVE THE REGISTERS
106062  012701  102740                  MOV     #T27PK2,R1              ;START OF THE PACKET
106066  012721  100006                  MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
106072  012721  102770                  MOV     #T27BF2,(R1)+           ;ADDRESS OF DATA BLOCK
106076  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
106100  012721  000006                  MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
106104  005021                          CLR     (R1)+
106106  012701  102770                  MOV     #T27BF2,R1              ;POINT TO DATA SEL AREA
106112  005021                          CLR     (R1)+
106114  005011                          CLR     (R1)
106116  000207                          RTS     PC                      ;RETURN
106120                          T27RT3:
106120                                  SAVREG                          ;SAVE REGISTERS
106124  012701  102760                  MOV     #T27PK3,R1              ;SET UP POINTER ADDRESS
106130  005021                          CLR     (R1)+                   ;COMMAND SPACE
106132  005021                          CLR     (R1)+                   ;ADDRESS OF DATA BLOCK
```

```
TEST  7: WRITE DATA RETRY

14561 106134  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
14562 106136  005011                        CLR     (R1)                    ;SIZE OF DATA TRANSFER BLOCK
14563 106140  000207                        RTS     PC                      ;RETURN
14564 106142                                ENDTST
      106142                                                        L10122:
      106142  104401                                                        TRAP    C$ETST
14565
14566                                       .SBTTL  TEST  8: WRITE/READ TAPE MARK
14567                                 ;+
14568                                 ;
14569                                 ;THIS TEST VERIFIES THAT THE WRITE TAPE MARK COMMAND OPERATES
14570                                 ;PROPERLY. IT IS VERIFIED THAT THE TAPE MARK IS WRITTEN ONTO TAPE
14571                                 ;BY CHECKING THAT THE READ AND SPACE RECORDS COMMANDS DETECT THE
14572                                 ;TAPE MARK. IN ADDITION, SINCE WRITE TAPE MARK IS THE FIRST
14573                                 ;SUBCOMMAND UNDER THE FORMAT COMMAND BEING TESTED, IT IS VERIFIED
14574                                 ;THAT THE CLEAR VOLUME CHECK (CVC) BIT OPERATES PROPERLY AND THAT
14575                                 ;FORMAT COMMANDS WITH ILLEGAL MODE CODES ARE REJECTED.
14576                                 ;
14577                                 ;
14578                                 ;THE TEST CONSISTS OF THE FOLLOWING 3 SUBTESTS
14579                                 ;
14580                                 ;
14581                                 ;
14582                                 ;-
14583 106144                                BGNTST
      106144                                                            T8::
14584 106144  012737  006446  002170        MOV     #EPRT2,EPRTSW           ;SECONDARY ERROR MESSAGE
14585 106152  005037  003124              CLR     KTENABLE                ;TURN KT11 OFF
14586 106156  004737  017364              JSR     PC,KTOFF                ;TURN KT11 BACK OFF IF THERE
14591 106162  012700  113401              MOV     #TST28ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
14592 106166  004737  016600              JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
14593 106172  012737  000005  002206        MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
14594                                 ;+
14595                                 ;
14596                                 ;TEST 8, SUBTEST 1
14597                                 ;
14598                                 ;
14599                                 ;VERIFIES THAT A FORMAT COMMAND (WITH ANY LEGAL MODE
14600                                 ;CODE) WITH THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS
14601                                 ;REJECTED IF THE VOLUME CHECK (VCK) FLAG IS SET. ALL
14602                                 ;VALID MODE CODES ARE CHECKED.
14603                                 ;
14604                                 ;
14605                                 ;-
14606
14607 106200                          T28LOOP:
14608 106200                                BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
      106200                                                                    T8.1:
      106200  104402                                                              TRAP    C$BSUB
14609 106202  004737  113426                JSR     PC,T28REST              ;SET COMMAND PACKET
14610 106206  004737  113520                JSR     PC,T28RT2               ;SET UP OTHER COMMAND PACKET
14611 106212  004737  113562                JSR     PC,T28RT3               ;SET UP OTHER COMMAND PACKET
14612 106216  004737  016064                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
14613 106222  103407                      BCS     20$                     ;BR IF INIT WAS OK
14614 106224  005237  002212              INC     FATFLG                  ;BUMP COUNT
14618 106230  010001                      MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
14619 106232                              ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
```

TEST  8: WRITE/READ TAPE MARK

```
                106232  104455                                                          TRAP    C$ERDF
                106234  001441                                                          .WORD   801
                106236  003650                                                          .WORD   SFIERR
                106240  012124                                                          .WORD   SFIMSG
 14620          106242  012737  000007  111360  20$:    MOV     #7,T28DSW               ;SET UP DRIVE NUMBER
 14621          106250  012704  111340          MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 14622          106254  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 14623          106260  103407                  BCS     24$                     ;BR, IF COMMAND ISSUED OK
 14624          106262  005237  002212          INC     FATFLG                  ;BUMP COUNT
 14628          106266  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 14629          106270                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                106270  104456                                                          TRAP    C$ERHRD
                106272  001442                                                          .WORD   802
                106274  005054                                                          .WORD   WRTMSG
                106276  012124                                                          .WORD   SFIMSG
 14630          106300                  24$:    CKLOOP
                106300  104406                                                          TRAP    C$CLP1
 14631          106302  005737  002216          TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
 14632          106306  C01044                  BNE     50$                     ;BR IF SWITCH IS ON
 14633
 14634          106310  112737  000200  111501          MOVB    #200,T28BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
 14635          106316  112737  000010  111500          MOVB    #10,T28BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
 14636          106324  012704  111450          MOV     #T28PK2,R4              ;WRITE SUBSYS MEM PACKET
 14637          106330  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 14638          106334  004737  016426          JSR     PC,CHKTSSR              ;WAIT FOR SSR
 14639          106340  103407                  BCS     30$                     ;BR, IF NO ERROR
 14640          106342  010001                  MOV     R0,R1                   ;ERROR, SAVE TSSR
 14641          106344  005237  002212          INC     FATFLG                  ;BUMP COUNT
 14645          106350                          ERRHRD  ERRNO,T28SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT, MISCELLANEOUS
                106350  104456                                                          TRAP    C$ERHRD
                106352  001443                                                          .WORD   803
                106354  112175                                                          .WORD   T28SSR
                106356  012136                                                          .WORD   PKTSSR
 14646          106360                  30$:    CKLOOP                          ;LOOP IF SELECTED
                106360  104406                                                          TRAP    C$CLP1
 14647          106362  012704  111340          MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 14648          106366  012737  000007  111360  MOV     #7,T28DSW               ;SELECT DRIVE 7
 14649          106374  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 14650          106400  103407                  BCS     50$                     ;BR, IF COMMAND ISSUED OK
 14651          106402  005237  002212          INC     FATFLG                  ;BUMP COUNT
 14655          106406  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 14656          106410                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                106410  104456                                                          TRAP    C$ERHRD
                106412  001444                                                          .WORD   804
                106414  005054                                                          .WORD   WRTMSG
                106416  012124                                                          .WORD   SFIMSG
 14657          106420                  50$:    CKLOOP                          ;SCOPE LOOP
                106420  104406                                                          TRAP    C$CLP1
 14658          106422  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 14659          106426  032701  000100          BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
 14660          106432  001006                  BNE     60$                     ;BR, IF OFFLINE (GOOD)
 14661          106434  005237  002212          INC     FATFLG                  ;BUMP COUNT
 14665          106440                          ERRDF   ERRNO,T28OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
                106440  104455                                                          TRAP    C$ERDF
                106442  001445                                                          .WORD   805
                106444  112530                                                          .WORD   T28OFL
                106446  012124                                                          .WORD   SFIMSG
```

TEST 8: WRITE/READ TAPE MARK

```
14666 106450                          60$:    CKLOOP                          ;LOOP IF SELECTED
      106450 104406                                                                 TRAP    C$CLP1
14667 106452 012703 111516                    MOV     #T28RN,R3               ;POINTER FOR COMMANDS
14668 106456 011337 111470            65$:    MOV     (R3),T28PK3             ;TAPE READ COMMAND IN PLACE
14669 106462 012704 111470                    MOV     #T28PK3,R4              ;R4 = POINTER TO PACKET
14670 106466 010465 000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
14671 106472 004737 016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
14672 106476 016501 000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
14673 106502 012702 100306                    MOV     #SSR!SC!OFL!BIT1!BIT2,R2        ;SET UP EXPECTED
14674 106506 020102                           CMP     R1,R2                   ;ARE THEY EQUAL
14675 106510 001406                           BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
14676 106512 005237 002212                    INC     FATFLG                  ;BUMP COUNT
14680 106516                                  ERRHRD  ERRNO,T28TM,PKTSSR      ;TSSR INCORRECT AFTER FORMAT CMD
      106516 104456                                                                 TRAP    C$ERHRD
      106520 001446                                                                 .WORD   806
      106522 112404                                                                 .WORD   T28TM
      106524 012136                                                                 .WORD   PKTSSR
14681 106526                          80$:    CKLOOP                          ;LOOP IF SELECTED
      106526 104406                                                                 TRAP    C$CLP1
14682 106530 005723                           TST     (R3)+           ;POINT TO NEXT COMMAND
14683 106532 022713 177777                    CMP     #177777,(R3)            ;END OF THE COMMANDS YET
14684 106536 001401                           BEQ     90$                     ;BR, IF DONE
14685 106540 000746                           BR      65$                     ;MORE COMMAND(S) TO GO
14686 106542                          90$:
14687 106542                                  ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
      106542                                                                        L10131:
      106542 104403                                                                 TRAP    C$ESUB
14688 106544 023727 002212 000017             CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
14689 106552 103402                           BLO     999$                            ;BR, IF LESS THAN 25
14690 106554 004737 017272                    JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
14691 106560                          999$:
14692
14693                                 ;+
14694                                 ;
14695                                 ;TEST 8, SUBTEST 2
14696                                 ;
14697                                 ;VERIFIES THAT A FORMAT COMMAND WITH AN ILLEGAL MODE
14698                                 ;CODE CAUSES FUNCTION REJECT TERMINATION WITH THE
14699                                 ;ILLEGAL COMMAND (ILC) ERROR BIT SET. ALL ILLEGAL
14700                                 ;MODE CODES ARE CHECKED.
14701                                 ;
14702                                 ;
14703                                 ;
14704                                 ;-
14705 106560                                 BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
      106560                                                                        T8.2:
      106560 104402                                                                 TRAP    C$BSUB
14706 106562 004737 113426                    JSR     PC,T28REST              ;SET COMMAND PACKET
14707 106566 004737 113520                    JSR     PC,T28RT2               ;SET UP OTHER COMMAND PACKET
14708 106572 004737 113562                    JSR     PC,T28RT3               ;SET UP OTHER COMMAND PACKET
14709 106576 004737 016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
14710 106602 103407                           BCS     20$                     ;BR IF INIT WAS OK
14711 106604 005237 002212                    INC     FATFLG                  ;BUMP COUNT
14715 106610 010001                           MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
14716 106612                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      106612 104455                                                                 TRAP    C$ERDF
      106614 001447                                                                 .WORD   807
```

TEST 8: WRITE/READ TAPE MARK

```
        106616  003650                                                          .WORD   SFIERR
        106620  012124                                                          .WORD   SFIMSG
 14717  106622  013737  002172  111360  20$:    MOV     UNITN,T28DSW           ;SET UP DRIVE NUMBER
 14718  106630  012704  111340                  MOV     #T28PACKET,R4          ;SUBROUTINE NEEDS PACKET ADDRESS
 14719  106634  004737  010752                  JSR     PC,WRTCHR              ;ISSUE WRITE CHARACTERISTICS
 14720  106640  103407                          BCS     24$                    ;BR. IF COMMAND ISSUED OK
 14721  106642  005237  002212                  INC     FATFLG                 ;BUMP COUNT
 14725  106646  010001                          MOV     R0,R1                  ;SAVE CONTENTS OF TSSR
 14726  106650                                  ERRHRD  ERRNO,WRTMSG,SFIMSG    ;WRITE CHARACTERISTISC FAILED
        106650  104456                                                          TRAP    C$ERHRD
        106652  001450                                                          .WORD   808
        106654  005054                                                          .WORD   WRTMSG
        106656  012124                                                          .WORD   SFIMSG
 14727  106660                          24$:    CKLOOP                         ;LOOP IF SELECTED
        106660  104406                                                          TRAP    C$CLP1
 14728  106662  012703  111506                  MOV     #T28IMV,R3             ;SET POINTER FOR COMMANDS
 14729  106666  011337  111470          30$:    MOV     (R3),T28PK3            ;SET UP NEXT COMMAND
 14730  106672  013737  003114  111472          MOV     FREE,T28RB             ;STARTING WRITE BUFFER ADDRESS
 14731  106700  012704  111470                  MOV     #T28PK3,R4             ;SET UP R4 WITH PACKET ADDRESS
 14732  106704  012737  000400  111476          MOV     #256.,T28SZ            ;SET UP RECORD SIZE IN PACKET
 14733  106712  010465  000000                  MOV     R4,TSDB(R5)            ;ISSUE COMMAND
 14734  106716  004737  016340                  JSR     PC,WAITF               ;WAIT FOR SSR!BIT1!BIT2 TO SET
 14735  106722  016501  000002                  MOV     TSSR(R5),R1            ;GET TSSR CONTENTS
 14736  106726  012702  100206                  MOV     #SSR!SC!BIT1!BIT2,R2   ;SET UP EXPECTED
 14737  106732  020102                          CMP     R1,R2                  ;ARE THEY EQUAL
 14738  106734  001406                          BEQ     75$                    ;BR. IF OK
 14739  106736  005237  002212                  INC     FATFLG                 ;BUMP COUNT
 14743  106742                                  ERRHRD  ERRNO,T28WDF,PKTSSR    ;TSSR INCORRECT AFTER READ DATA
        106742  104456                                                          TRAP    C$ERHRD
        106744  001451                                                          .WORD   809
        106746  112037                                                          .WORD   T28WDF
        106750  012136                                                          .WORD   PKTSSR
 14744  106752                          75$:    CKLOOP                         ;LOOP IF SELECTED
        106752  104406                                                          TRAP    C$CLP1
 14745  106754  013701  111370                  MOV     T28BFR+6,R1            ;GET MESSAGE BUFFER
 14746  106760  010102                          MOV     R1,R2                  ;SET UP EXPECTED
 14747  106762  052702  001000                  BIS     #BIT9,R2               ;SET THE ILC BIT IN EXPECTED
 14748  106766  020102                          CMP     R1,R2                  ;ARE THEY EQUAL
 14749  106770  001406                          BEQ     180$                   ;BR. IF EQUAL (ALL IS WELL)
 14750  106772  005237  002212                  INC     FATFLG                 ;BUMP COUNT
 14754  106776                                  ERRHRD  ERRNO,T28LOG,EXPREC    ;THE ILC BIT WAS NOT SET IN XSTO
        106776  104456                                                          TRAP    C$ERHRD
        107000  001452                                                          .WORD   810
        107002  112114                                                          .WORD   T28LOG
        107004  015564                                                          .WORD   EXPREC
 14755  107006                          180$:   CKLOOP
        107006  104406                                                          TRAP    C$CLP1
 14756  107010  005723                          TST     (R3)+          ;BUMP TO NEXT ADDRESS (COMMAND)
 14757  107012  021327  177777                  CMP     (R3),#177777           ;CHECK FOR END OF COMMAND BUFFER
 14758  107016  001323                          BNE     30$                    ;BR. IF MORE COMMANDS TO TRY
 14759  107020                          190$:   CKLOOP                         ;LOOP IF SELECTED
        107020  104406                                                          TRAP    C$CLP1
 14760  107022                                  ENDSUB                         ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
        107022                                                                  L10132:
        107022  104403                                                          TRAP    C$ESUB
 14761  107024  023727  002212  000017          CMP     FATFLG,#15.                    ;IS ERROR COUNT AT 25
 14762  107032  103402                          BLO     999$                   ;BR. IF LESS THAN 25
```

TEST 8: WRITE/READ TAPE MARK

```
14763 107034 004737 017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
14764 107040                        999$:
14765
14766                               ;*
14767                               ;
14768                               ;TEST 8, SUBTEST 3
14769                               ;
14770                               ;VERIFIES THAT WRITE TAPE MARK COMMANDS OPERATE
14771                               ;PROPERLY, AND THAT READ COMMANDS SUBSEQUENTLY ISSUED
14772                               ;TO DETECT THE WRITTEN TAPE MARKS TERMINATE WITH TAPE
14773                               ;STATUS ALERT WITH THE TAPE MARK DETECTED (TMK) STATUS
14774                               ;BIT SET. THE FOLLOWING SEQUENCE IS EXECUTED.
14775                               ;
14776                               ;1.     THE CONTROLLER IS INITIALIZED AND TAPE REWOUND.
14777                               ;       THIS SETS THE VOLUME CHECK (VCK) STATUS BIT.
14778                               ;
14779                               ;2.     A WRITE TAPE MARK COMMAND WITH CVC=1 IS ISSUED
14780                               ;       AND PROPER TERMINATION AND STATUS IS VERIFIED
14781                               ;       (I.E. VCK=0 AND TMK=1).
14782                               ;
14783                               ;3.     SEVERAL MORE WRITE TAPE MARK COMMANDS, THESE WITH
14784                               ;       CVC=0 ARE ISSUED AND PROPER TERMINATION (NORMAL)
14785                               ;       AND STATUS (TMK) VERIFIED.
14786                               ;
14787                               ;4.     A READ REVERSE COMMAND IS ISSUED AND PROPER
14788                               ;       TERMINATION (TAPE STATUS ALERT) AND STATUS (TMK)
14789                               ;       VERIFIED. IT IS ALSO VERIFIED THAT NO DATA IS
14790                               ;       TRANSFERRED INTO MEMORY.
14791                               ;
14792                               ;5.     A SPACE RECORDS REVERSE COMMAND IS ISSUED AND
14793                               ;       PROPER TERMINATION (TAPE STATUS ALERT) AND STATUS
14794                               ;       (TMK) VERIFIED.
14795                               ;
14796                               ;6.     THE TAPE IS REWOUND AND A READ FORWARD COMMAND IS
14797                               ;       ISSUED AND PROPER TERMINATION (TAPE STATUS ALERT)
14798                               ;       AND STATUS (TMK) VERIFIED. IT IS ALSO VERIFIED
14799                               ;       THAT NO DATA IS TRANSFERRED INTO MEMORY.
14800                               ;
14801                               ;7.     A SPACE RECORDS REVERSE COMMAND THAT CONTAINS A
14802                               ;       RECORD COUNT GREATER THAN 1 IS ISSUED AND IT IS
14803                               ;       VERIFIED THAT TAPE STATUS ALERT TERMINATION
14804                               ;       OCCURED, TMK=1 AND THAT RBPCR (RESIDUAL
14805                               ;       BYTE/RECORD COUNTER) CONTAINS THE PROPER NONZERO
14806                               ;       VALUE. THIS OPERATION VERIFIES THAT DETECTION OF
14807                               ;       THE TAPE MARK CAUSES THE SPACE RECORDS OPERATION
14808                               ;       TO BE PREMATURELY TERMINATED. THIS SHOULD LEAVE
14809                               ;       THE POSITION JUST BEFORE THE FIRST RECORD ON
14810                               ;       TAPE.
14811                               ;
14812                               ;8.     TAPE POSITION IS VERIFIED BY ISSUING ANOTHER
14813                               ;       SPACE RECORDS REVERSE COMMAND AND VERIFYING THAT
14814                               ;       TAPE STATUS ALERT TERMINATION OCCURS, WITH THE
14815                               ;       REVERSE INTO BOT (RIB) STATUS ERROR BIT SET.
14816                               ;
14817                               ;9.     A SPACE RECORDS FORWARD COMMAND THAT CONTAINS A
14818                               ;       RECORD COUNT GREATER THAN 1 IS ISSUED AND IT IS
14819                               ;       VERIFIED THAT TAPE STATUS ALERT TERMINATION
```

TEST  8: WRITE/READ TAPE MARK

```
14820                                   ;       OCCURED, TMK=1, AND THAT RBPCR (RESIDUAL
14821                                   ;       BYTE/RECORD COUNTER) CONTAINS THE PROPER NONZERO
14822                                   ;       VALUE. THIS OPERATION VERIFIES THAT DETECTION OF
14823                                   ;       THE TAPE MARK CAUSES THE SPACE RECORDS OPERATION
14824                                   ;       TO BE PREMATURELY TERMINATED.
14825                                   ;
14826                                   ;
14827                                   ;
14828                                   ;
14829                                   ;
14830                                   ;
14831                                   ;-
14832 107040                            BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
       107040                                                                   T8.3:
       107040  104402                                                                   TRAP    C$BSUB
14833  107042  004737  113426           JSR     PC,T28REST              ;SET COMMAND PACKET
14834  107046  004737  113520           JSR     PC,T28RT2               ;SET UP OTHER COMMAND PACKET
14835  107052  004737  113562           JSR     PC,T28RT3               ;SET UP OTHER COMMAND PACKET
14836  107056  012737  023420  111532   MOV     #10000.,T28DLY          ;SET UP DELAY ROUTINE
14837  107064  004737  016064   10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
14838  107070  103426                   BCS     20$                     ;BR IF INIT WAS OK
14839  107072                           DELAY   250                     ;DELAY ABOUT .25 SECONDS
       107072  012727  000250                                                     MOV     #250.,(PC)+
       107076  000000                                                             .WORD   0
       107100  013727  002116                                                     MOV     L$DLY,(PC)+
       107104  000000                                                             .WORD   0
       107106  005367  177772                                                     DEC     -6(PC)
       107112  001375                                                             BNE     .-4
       107114  005367  177756                                                     DEC     -22(PC)
       107120  001367                                                             BNE     .-20
14840  107122  005337  111532           DEC     T28DLY                  ;BUMP DELAY ROUTINE DOWN
14841  107126  001356                   BNE     10$                     ;BR, IF MORE DELAY TIME LEFT
14842  107130  005237  002212           INC     FATFLG                  ;BUMP COUNT
14846  107134  010001                   MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
14847  107136                           ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
       107136  104455                                                             TRAP    C$ERDF
       107140  001453                                                             .WORD   811
       107142  003650                                                             .WORD   SFIERR
       107144  012124                                                             .WORD   SFIMSG
14848  107146  013737  002172  111360  20$:    MOV     UNITN,T28DSW            ;SET UP DRIVE NUMBER
14849  107154  012704  111340           MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
14850  107160  004737  010752           JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
14851  107164  103407                   BCS     23$                     ;BR, IF COMMAND ISSUED OK
14852  107166  005237  002212           INC     FATFLG                  ;BUMP COUNT
14856  107172  010001                   MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
14857  107174                           ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
       107174  104456                                                             TRAP    C$ERHRD
       107176  001454                                                             .WORD   812
       107200  005054                                                             .WORD   WRTMSG
       107202  012124                                                             .WORD   SFIMSG
14858  107204                   23$:    CKLOOP                          ;LOOP IF SELECTED
       107204  104406                                                             TRAP    C$CLP1
14859  107206  004737  011104           JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
14860  107212  103411                   BCS     30$                     ;BR, IF NO PROBLEM
14861  107214  016501  000002           MOV     TSSR(R5),R1             ;GET TSSR
14862  107220  010004                   MOV     R0,R4                   ;SAVE PACKET ADDRESS
14863  107222  005237  002212           INC     FATFLG                  ;BUMP COUNT
```

TEST 8: WRITE/READ TAPE MARK

```
14867 107226                                  ERRHRD  ERRNO,T28RWN,PKTSSR     ;REWIND NOT ACCEPTED
      107226  104456                                                          TRAP    C$ERHRD
      107230  001455                                                          .WORD   813
      107232  112461                                                          .WORD   T28RWN
      107234  012136                                                          .WORD   PKTSSR
14868 107236                          30$:    CKLOOP                        ;LOOP IF SELECTED
      107236  104406                                                          TRAP    C$CLP1
14869 107240  013701  111370                  MOV     T28BFR+6,R1             ;PICK UP XSTO
14870 107244  010102                          MOV     R1,R2                   ;SET UP EXPECTED
14871 107246  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
14872 107252  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
14873 107254  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
14874 107256  005237  002212                  INC     FATFLG                  ;BUMP COUNT
14878 107262                                  ERRHRD  ERRNO,T28BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      107262  104456                                                          TRAP    C$ERHRD
      107264  001456                                                          .WORD   814
      107266  112337                                                          .WORD   T28BOT
      107270  015564                                                          .WORD   EXPREC
14879 107272                          40$:    CKLOOP                        ;LOOP IF SELECTED
      107272  104406                                                          TRAP    C$CLP1
14880 107274  005737  002216          42$:    TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
14881 107300  001024                          BNE     50$                     ;BR IF SWITCH IS ON
14882 107302  112737  000200  111501          MOVB    #200,T28BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
14883 107310  112737  000010  111500          MOVB    #10,T28BS0              ;FUNC. SEL. BIT (TURN ON EXTFEA SWITCH)
14884 107316  012704  111450                  MOV     #T28PK2,R4              ;WRITE SUBSYS MEM PACKET
14885 107322  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
14886 107326  004737  016426                  JSR     PC,CHKTSSR              ;WAIT FOR SSR
14887 107332  103407                          BCS     50$                     ;BR, IF NO ERROR
14888 107334  010001                          MOV     R0,R1                   ;ERROR, SAVE TSSR
14889 107336  005237  002212                  INC     FATFLG                  ;BUMP COUNT
14893 107342                                  ERRHRD  ERRNO,T28SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
      107342  104456                                                          TRAP    C$ERHRD
      107344  001457                                                          .WORD   815
      107346  112175                                                          .WORD   T28SSR
      107350  012136                                                          .WORD   PKTSSR
14894 107352                          50$:    CKLOOP                        ;LOOP IF SELECTED
      107352  104406                                                          TRAP    C$CLP1
14895 107354  012737  000007  111360          MOV     #7,T28DSW               ;SET UP DRIVE NUMBER
14896 107362  012704  111340                  MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
14897 107366  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
14898 107372  103407                          BCS     60$                     ;BR, IF COMMAND ISSUED OK
14899 107374  005237  002212                  INC     FATFLG                  ;BUMP COUNT
14903 107400  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
14904 107402                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      107402  104456                                                          TRAP    C$ERHRD
      107404  001460                                                          .WORD   816
      107406  005054                                                          .WORD   WRTMSG
      107410  012124                                                          .WORD   SFIMSG
14905 107412                          60$:    CKLOOP                        ;SCOPE LOOP
      107412  104406                                                          TRAP    C$CLP1
14906 107414  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
14907 107420  032701  000100                  BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
14908 107424  001006                          BNE     65$                     ;BR, IF OFFLINE (GOOD)
14909 107426  005237  002212                  INC     FATFLG                  ;BUMP COUNT
14913 107432                                  ERRDF   ERRNO,T28OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
      107432  104455                                                          TRAP    C$ERDF
      107434  001461                                                          .WORD   817
```

TEST 8: WRITE/READ TAPE MARK

```
                107436  112530                                                          .WORD   T28OFL
                107440  012124                                                          .WORD   SFIMSG
 14914          107442                          65$:    CKLOOP                                  ;LOOP IF SELECTED
                107442  104406                                                          TRAP    C$CLP1
 14915          107444  013737  002172  111360          MOV     UNITN,T28DSW            ;SET UP DRIVE NUMBER
 14916          107452  012704  111340                  MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 14917          107456  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 14918          107462  103407                          BCS     68$                     ;BR, IF COMMAND ISSUED OK
 14919          107464  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 14923          107470  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 14924          107472                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                107472  104456                                                          TRAP    C$ERHRD
                107474  001462                                                          .WORD   818
                107476  005054                                                          .WORD   WRTMSG
                107500  012124                                                          .WORD   SFIMSG
 14925          107502                          68$:    CKLOOP                                  ;LOOP IF SELECTED
                107502  104406                                                          TRAP    C$CLP1
 14926          107504  012737  140011  111470          MOV     #140011,T28PK3          ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
 14927          107512  012704  111470                  MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 14928          107516  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 14929          107522  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 14930          107526  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 14931          107532  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 14932          107536  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 14933          107540  001406                          BEQ     70$                     ;BR, IF OK
 14934          107542  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 14938          107546                                  ERRHRD  ERRNO,T28WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE TAPE MARK
                107546  104456                                                          TRAP    C$ERHRD
                107550  001463                                                          .WORD   819
                107552  112603                                                          .WORD   T28WDC
                107554  012136                                                          .WORD   PKTSSR
 14939          107556                          70$:    CKLOOP                                  ;LOOP IF SELECTED
                107556  104406                                                          TRAP    C$CLP1
 14940          107560  013701  111370                  MOV     T28BFR+6,R1             ;PICK UP XSTO (VCK CHECK)
 14941          107564  010102                          MOV     R1,R2                   ;SET UP EXPECTED
 14942          107566  042702  000020                  BIC     #BIT4,R2                ;VCK SHOULD BE 0
 14943          107572  020102                          CMP     R1,R2                   ;IS VCK SET CORRECTLY
 14944          107574  001406                          BEQ     80$                     ;BR, IF VCK IS CLEAR
 14945          107576  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 14949          107602                                  ERRHRD  ERRNO,T28VCK,EXPREC     ;VCK WAS NOT CLEAR AFTER CVC=1
                107602  104456                                                          TRAP    C$ERHRD
                107604  001464                                                          .WORD   820
                107606  112662                                                          .WORD   T28VCK
                107610  015564                                                          .WORD   EXPREC
 14950          107612                          80$:    CKLOOP                                  ;LOOP IF SELECTED
                107612  104406                                                          TRAP    C$CLP1
 14951          107614  013701  111370                  MOV     T28BFR+6,R1             ;PICK UP XSTO (CHECK TMK)
 14952          107620  010102                          MOV     R1,R2                   ;SET UP EXPECTED
 14953          107622  052702  100000                  BIS     #BIT15,R2               ;TMK SHOULD BE SET
 14954          107626  020102                          CMP     R1,R2                   ;WAS TMK SET
 14955          107630  001406                          BEQ     90$                     ;BR, IF TMK WAS SET
 14956          107632  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 14960          107636                                  ERRHRD  ERRNO,T28TMK,EXPREC     ;TMK WAS NOT SET AFTER WRT TAPE MARK
                107636  104456                                                          TRAP    C$ERHRD
                107640  001465                                                          .WORD   821
                107642  112735                                                          .WORD   T28TMK
                107644  015564                                                          .WORD   EXPREC
```

TEST 8: WRITE/READ TAPE MARK

```
14961 107646                          90$:    CKLOOP                          ;LOOP IF SELECTED
      107646 104406                                                                 TRAP    C$CLP1
14962 107650 004737 011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
14963 107654 103411                           BCS     130$                    ;BR, IF NO PROBLEM
14964 107656 010004                           MOV     R0,R4                   ;SAVE PACKET ADDRESS
14965 107660 016501 000002                    MOV     TSSR(R5),R1             ;GET TSSR STATUS
14966 107664 005237 002212                    INC     FATFLG                  ;BUMP COUNT
14970 107670                                  ERRHRD  ERRNO,T28RWN,PKTSSR     ;REWIND NOT ACCEPTED
      107670 104456                                                                 TRAP    C$ERHRD
      107672 001466                                                                 .WORD   822
      107674 112461                                                                 .WORD   T28RWN
      107676 012136                                                                 .WORD   PKTSSR
14971 107700                          130$:   CKLOOP                          ;LOOP IF SELECTED
      107700 104406                                                                 TRAP    C$CLP1
14972 107702 013701 111370                    MOV     T28BFR+6,R1             ;PICK UP XSTO
14973 107706 010102                           MOV     R1,R2                   ;SET UP EXPECTED
14974 107710 052702 000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
14975 107714 020102                           CMP     R1,R2                   ;DOES EXP = REC'D
14976 107716 001406                           BEQ     140$                    ;BR, IF EQUAL (OK)
14977 107720 005237 002212                    INC     FATFLG                  ;BUMP COUNT
14981 107724                                  ERRHRD  ERRNO,T28BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      107724 104456                                                                 TRAP    C$ERHRD
      107726 001467                                                                 .WORD   823
      107730 112337                                                                 .WORD   T28BOT
      107732 015564                                                                 .WORD   EXPREC
14982 107734                          140$:   CKLOOP                          ;LOOP IF SELECTED
      107734 104406                                                                 TRAP    C$CLP1
14983 107736 012703 000012            150$:   MOV     #10.,R3                 ;NUMBER OF RECORDS TO WRITE TM
14984 107742 012737 140011 111470             MOV     #140011,T28PK3          ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
14985 107750 012704 111470                    MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
14986 107754 010465 000000            155$:   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
14987 107760 004737 016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
14988 107764 016501 000002                    MOV     TSSR(R5),R1             ;PICK UP TSSR
14989 107770 012702 000200                    MOV     #SSR,R2                 ;SET UP EXPECTED (SSR ONLY)
14990 107774 020102                           CMP     R1,R2                   ;WAS STATUS GOOD
14991 107776 001406                           BEQ     165$                    ;BR, IF TERMINATION WAS GOOD
14992 110000 005237 002212                    INC     FATFLG                  ;BUMP COUNT
14996 110004                                  ERRHRD  ERRNO,T28WDC,PKTSSR     ;TSSR NOT CORRECT AFTER WRT TAPE M.
      110004 104456                                                                 TRAP    C$ERHRD
      110006 001470                                                                 .WORD   824
      110010 112603                                                                 .WORD   T28WDC
      110012 012136                                                                 .WORD   PKTSSR
14997 110014                          165$:   CKLOOP                          ;LOOP IF SELECTED
      110014 104406                                                                 TRAP    C$CLP1
14998 110016 013701 111370                    MOV     T28BFR+6,R1             ;PICK UP XSTO
14999 110022 010102                           MOV     R1,R2                   ;SET UP EXPECTED
15000 110024 052702 100000                    BIS     #BIT15,R2               ;SET TMK BIT IN EXPECTED
15001 110030 020102                           CMP     R1,R2                   ;DOES EXP = REC'D
15002 110032 001406                           BEQ     180$                    ;BR, IF EQUAL (OK)
15003 110034 005237 002212                    INC     FATFLG                  ;BUMP COUNT
15007 110040                                  ERRHRD  ERRNO,T28TMK,EXPREC     ;TMK NOT SET AFTER WRT TAPE MARK
      110040 104456                                                                 TRAP    C$ERHRD
      110042 001471                                                                 .WORD   825
      110044 112735                                                                 .WORD   T28TMK
      110046 015564                                                                 .WORD   EXPREC
15008 110050                          180$:   CKLOOP                          ;LOOP IF SELECTED
      110050 104406                                                                 TRAP    C$CLP1
```

TEST 8: WRITE/READ TAPE MARK

```
15009 110052  005303                        DEC     R3                      ;BUMP COUNTER DOWN
15010 110054  001337                        BNE     155$                    ;BR, IF LESS THAN 10 TAPE MARKS
15011 110056  012700  177777                MOV     #177777,R0              ;VALUE TO WRITTEN TO MEMORY
15012 110062  004737  017512                JSR     PC,FILLMEM              ;FILL MEM WITH ALL ONES
15013 110066  013737  003114  111472        MOV     FREE,T28WB              ;STARTING READ BUFFER ADDRESS
15014 110074  012737  140401  111470        MOV     #140401,T28PK3          ;READ REVERSE,ACK, COMMAND
15015 110102  012704  111470                MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
15016 110106  013737  000024  111476        MOV     20.,T28SZ               ;SET UP RECORD SIZE IN PACKET
15017 110114  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
15018 110120  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
15019 110124  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
15020 110130  012702  100204                MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
15021 110134  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
15022 110136  001406                        BEQ     200$                    ;BR, IF OK
15023 110140  005237  002212                INC     FATFLG                  ;BUMP COUNT
15027 110144                                ERRHRD  ERRNO,T28RDF,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      110144  104456                                                            TRAP    C$ERHRD
      110146  001472                                                            .WORD   826
      110150  111674                                                            .WORD   T28RDF
      110152  012136                                                            .WORD   PKTSSR
15028 110154                        200$:   CKLOOP                          ;LOOP IF SELECTED
      110154  104406                                                            TRAP    C$CLP1
15029 110156  013701  111370                MOV     T28BFR+6,R1             ;PICK UP XSTO
15030 110162  010102                        MOV     R1,R2                   ;SET UP EXPECTED
15031 110164  052702  100000                BIS     #BIT15,R2               ;TMK SHOULD BE SET
15032 110170  020102                        CMP     R1,R2                   ;IS TMK SET
15033 110172  001406                        BEQ     210$                    ;BR, IF TMK WAS SET (GOOD)
15034 110174  005237  002212                INC     FATFLG                  ;BUMP COUNT
15038 110200                                ERRHRD  ERRNO,T28RRM,EXPREC     ;TMK NOT SET AFTER READ REV
      110200  104456                                                            TRAP    C$ERHRD
      110202  001473                                                            .WORD   827
      110204  113007                                                            .WORD   T28RRM
      110206  015564                                                            .WORD   EXPREC
15039 110210                        210$:   CKLOOP                          ;LOOP IF SELECTED
      110210  104406                                                            TRAP    C$CLP1
15040 110212  017701  072676                MOV     @FREE,R1                ;FIRST LOC IN READ BUFFER
15041 110216  012702  177777                MOV     #177777,R2              ;EXPECTED IF NO DATA TRANS.
15042 110222  020102                        CMP     R1,R2                   ;DID ANY DATA GET TRANSFERRED
15043 110224  001406                        BEQ     220$                    ;BR, IF NO DATA TRANS (GOOD)
15044 110226  005237  002212                INC     FATFLG                  ;BUMP COUNT
15048 110232                                ERRHRD  ERRNO,T28DTR,EXPREC     ;DATA TRANSFERRED ON READ TAPE MARK
      110232  104456                                                            TRAP    C$ERHRD
      110234  001474                                                            .WORD   828
      110236  113222                                                            .WORD   T28DTR
      110240  015564                                                            .WORD   EXPREC
15049 110242                        220$:   CKLOOP                          ;LOOP IF SELECTED
      110242  104406                                                            TRAP    C$CLP1
15050 110244  012737  100410  111470        MOV     #100410,T28PK3          ;SPACE REVERSE,ACK, COMMAND
15051 110252  012737  000001  111472        MOV     #1,T28RB                ;NUMBER OF RECORDS TO SPACE BACK
15052 110260  012704  111470                MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
15053 110264  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
15054 110270  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
15055 110274  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
15056 110300  012702  100204                MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
15057 110304  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
15058 110306  001406                        BEQ     222$                    ;BR, IF OK
15059 110310  005237  002212                INC     FATFLG                  ;BUMP COUNT
```

TEST 8: WRITE/READ TAPE MARK

```
15063 110314                          ERRHRD  ERRNO,T28RDG,PKTSSR     ;TSSR INCORRECT AFTER SPACE CMD.
      110314  104456                                                          TRAP    C$ERHRD
      110316  001475                                                          .WORD   829
      110320  111755                                                          .WORD   T28RDG
      110322  012136                                                          .WORD   PKTSSR
15064 110324                    222$: CKLOOP                                ;LOOP IF SELECTED
      110324  104406                                                          TRAP    C$CLP1
15065 110326  013701  111370            MOV     T28BFR+6,R1                 ;PICK UP XSTO
15066 110332  010102                    MOV     R1,R2                       ;SET UP EXPECTED
15067 110334  052702  100000            BIS     #BIT15,R2                   ;TMK SHOULD BE SET
15068 110340  020102                    CMP     R1,R2                       ;IS TMK SET
15069 110342  001406                    BEQ     226$                        ;BR, IF TMK WAS SET (GOOD)
15070 110344  005237  002212            INC     FATFLG                      ;BUMP COUNT
15074 110350                            ERRHRD  ERRNO,T28RRN,EXPREC         ;TMK NOT SET AFTER SPACE REV
      110350  104456                                                          TRAP    C$ERHRD
      110352  001476                                                          .WORD   830
      110354  113065                                                          .WORD   T28RRN
      110356  015564                                                          .WORD   EXPREC
15075 110360                    226$: CKLOOP                                ;LOOP IF SELECTED
      110360  104406                                                          TRAP    C$CLP1
15076 110362  004737  011104            JSR     PC,REWIND                   ;CALL TAPE REWIND COMMAND
15077 110366  103411                    BCS     230$                        ;BR, IF NO PROBLEM
15078 110370  010004                    MOV     R0,R4                       ;SAVE PACKET ADDRESS
15079 110372  016501  000002            MOV     TSSR(R5),R1                 ;GET TSSR
15080 110376  005237  002212            INC     FATFLG                      ;BUMP COUNT
15084 110402                            ERRHRD  ERRNO,T28RWN,PKTSSR         ;REWIND NOT ACCEPTED
      110402  104456                                                          TRAP    C$ERHRD
      110404  001477                                                          .WORD   831
      110406  112461                                                          .WORD   T28RWN
      110410  012136                                                          .WORD   PKTSSR
15085 110412                    230$: CKLOOP                                ;LOOP IF SELECTED
      110412  104406                                                          TRAP    C$CLP1
15086 110414  013701  111370            MOV     T28BFR+6,R1                 ;PICK UP XSTO
15087 110420  010102                    MOV     R1,R2                       ;SET UP EXPECTED
15088 110422  052702  000002            BIS     #BIT1,R2                    ;SET BOT BIT IN EXPECTED
15089 110426  020102                    CMP     R1,R2                       ;DOES EXP = REC'D
15090 110430  001406                    BEQ     240$                        ;BR, IF EQUAL (OK)
15091 110432  005237  002212            INC     FATFLG                      ;BUMP COUNT
15095 110436                            ERRHRD  ERRNO,T28BOT,EXPREC         ;TAPE NOT AT BOT AFTER REWIND
      110436  104456                                                          TRAP    C$ERHRD
      110440  001500                                                          .WORD   832
      110442  112337                                                          .WORD   T28BOT
      110444  015564                                                          .WORD   EXPREC
15096 110446                    240$: CKLOOP                                ;LOOP IF SELECTED
      110446  104406                                                          TRAP    C$CLP1
15097 110450  012700  177777            MOV     #177777,R0                  ;VALUE TO WRITTEN TO MEMORY
15098 110454  004737  017512            JSR     PC,FILLMEM                  ;FILL MEM WITH ALL ONES
15099 110460  013737  003114  111472    MOV     FREE,T28RB                  ;STARTING READ BUFFER ADDRESS
15100 110466  012737  100001  111470    MOV     #100001,T28PK3              ;READ FORWARD,ACK, COMMAND
15101 110474  012704  111470            MOV     #T28PK3,R4                  ;SET UP R4 WITH PACKET ADDRESS
15102 110500  013737  000024  111476    MOV     20.,T28SZ                   ;SET UP RECORD SIZE IN PACKET
15103 110506  010465  000000            MOV     R4,TSDB(R5)                 ;ISSUE COMMAND
15104 110512  004737  016340            JSR     PC,WAITF                    ;WAIT FOR SSR TO SET
15105 110516  016501  000002            MOV     TSSR(R5),R1                 ;GET TSSR CONTENTS
15106 110522  012702  100204            MOV     #SSR!SC!BIT2,R2             ;SET UP EXPECTED
15107 110526  020102                    CMP     R1,R2                       ;ARE THEY EQUAL
15108 110530  001406                    BEQ     245$                        ;BR, IF OK
```

TEST 8: WRITE/READ TAPE MARK

```
15109 110532  005237  002212              INC     FATFLG                  ;BUMP COUNT
15113 110536                              ERRHRD  ERRNO,T28WDE,PKTSSR      ;TSSR INCORRECT AFTER WRITE DATA
      110536  104456                                                      TRAP    C$ERHRD
      110540  001501                                                      .WORD   833
      110542  112246                                                      .WORD   T28WDE
      110544  012136                                                      .WORD   PKTSSR
15114 110546                        245$: CKLOOP                          ;LOOP IF SELECTED
      110546  104406                                                      TRAP    C$CLP1
15115 110550  013701  111370              MOV     T28BFR+6,R1             ;PICK UP XSTO
15116 110554  010102                      MOV     R1,R2                   ;SET UP EXPECTED
15117 110556  052702  100000              BIS     #BIT15,R2               ;TMK SHOULD BE SET
15118 110562  020102                      CMP     R1,R2                   ;IS TMK SET
15119 110564  001406                      BEQ     247$                    ;BR, IF TMK WAS SET (GOOD)
15120 110566  005237  002212              INC     FATFLG                  ;BUMP COUNT
15124 110572                              ERRHRD  ERRNO,T28RRP,EXPREC     ;TMK NOT SET AFTER READ REV
      110572  104456                                                      TRAP    C$ERHRD
      110574  001502                                                      .WORD   834
      110576  113144                                                      .WORD   T28RRP
      110600  C15564                                                      .WORD   EXPREC
15125 110602                        247$: CKLOOP                          ;LOOP IF SELECTED
      110602  104406                                                      TRAP    C$CLP1
15126 110604  017701  072304              MOV     @FREE,R1                        ;FIRST LOC IN READ BUFFER
15127 110610  012702  177777              MOV     #177777,R2              ;EXPECTED IF NO DATA TRANS.
15128 110614  020102                      CMP     R1,R2                   ;DID ANY DATA GET TRANSFERRED
15129 110616  001406                      BEQ     250$                    ;BR, IF NO DATA TRANS (GOOD)
15130 110620  005237  002212              INC     FATFLG                  ;BUMP COUNT
15134 110624                              ERRHRD  ERRNO,T28DTR,EXPREC     ;DATA TRANSFERRED ON READ TAPE MARK
      110624  104456                                                      TRAP    C$ERHRD
      110626  001503                                                      .WORD   835
      110630  113222                                                      .WORD   T28DTR
      110632  015564                                                      .WORD   EXPREC
15135 110634                        250$: CKLOOP                          ;LOOP IF SELECTED
      110634  104406                                                      TRAP    C$CLP1
15136 110636  012737  100410  111470      MOV     #100410,T28PK3          ;SPACE REVERSE,ACK, COMMAND
15137 110644  012737  000005  111472      MOV     #5,T28RB                ;NUMBER OF RECORDS TO SPACE BACK
15138 110652  012704  111470              MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
15139 110656  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
15140 110662  004737  016340              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
15141 110666  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
15142 110672  012702  100204              MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
15143 110676  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
15144 110700  001406                      BEQ     260$                    ;BR, IF OK
15145 110702  005237  002212              INC     FATFLG                  ;BUMP COUNT
15149 110706                              ERRHRD  ERRNO,T28RDG,PKTSSR     ;TSSR INCORRECT AFTER SPACE REV CMD.
      110706  104456                                                      TRAP    C$ERHRD
      110710  001504                                                      .WORD   836
      110712  111755                                                      .WORD   T28RDG
      110714  012136                                                      .WORD   PKTSSR
15150 110716                        260$: CKLOOP                          ;LOOP IF SELECTED
      110716  104406                                                      TRAP    C$CLP1
15151 110720  013701  111370              MOV     T28BFR+6,R1             ;PICK UP XSTO
15152 110724  010102                      MOV     R1,R2                   ;SET UP EXPECTED
15153 110726  052702  100000              BIS     #BIT15,R2               ;TMK SHOULD BE SET
15154 110732  020102                      CMP     R1,R2                   ;IS TMK SET
15155 110734  001406                      BEQ     270$                    ;BR, IF TMK WAS SET (GOOD)
15156 110736  005237  002212              INC     FATFLG                  ;BUMP COUNT
15160 110742                              ERRHRD  ERRNO,T28RRN,EXPREC     ;TMK NOT SET AFTER READ REV
```

TEST 8: WRITE/READ TAPE MARK

```
                110742  104456                                                          TRAP    C$ERHRD
                110744  001505                                                          .WORD   837
                110746  113065                                                          .WORD   T28RRN
                110750  015564                                                          .WORD   EXPREC
 15161          110752                          270$:   CKLOOP                          ;LOOP IF SELECTED
                110752  104406                                                          TRAP    C$CLP1
 15162          110754  013701  111366                  MOV     T28BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
 15163          110760  012702  000004                  MOV     #4.,R2                  ;SHOULD BE THE DIFFERENCE
 15164          110764  020102                          CMP     R1,R2                   ;IS COUNTER CORRECT
 15165          110766  001406                          BEQ     280$                    ;BR, IF COUNTER CORRECT
 15166          110770  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 15170          110774                                  ERRHRD  ERRNO,T28PBP,EXPREC     ;RESIDUAL BYTE COUNTER NOT CORRECT
                110774  104456                                                          TRAP    C$ERHRD
                110776  001506                                                          .WORD   838
                111000  111611                                                          .WORD   T28PBP
                111002  015564                                                          .WORD   EXPREC
 15171          111004                          280$:   CKLOOP                          ;LOOP IF SELECTED
                111004  104406                                                          TRAP    C$CLP1
 15172          111006  C12737  100410  111470          MOV     #100410,T28PK3          ;SPACE REVERSE,ACK, COMMAND
 15173          111014  012737  000001  111472          MOV     #1,T28RB                ;NUMBER OF RECORDS TO SPACE BACK
 15174          111022  012704  111470                  MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 15175          111026  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 15176          111032  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 15177          111036  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 15178          111042  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
 15179          111046  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 15180          111050  001406                          BEQ     290$                    ;BR, IF OK
 15181          111052  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 15185          111056                                  ERRHRD  ERRNO,T28RDG,PKTSSR     ;TSSR INCORRECT AFTER SPACE CMD.
                111056  104456                                                          TRAP    C$ERHRD
                111060  001507                                                          .WORD   839
                111062  111755                                                          .WORD   T28RDG
                111064  012136                                                          .WORD   PKTSSR
 15186          111066                          290$:   CKLOOP                          ;LOOP IF SELECTED
                111066  104406                                                          TRAP    C$CLP1
 15187          111070  013701  111376                  MOV     T28BFR+14,R1            ;PICK UP XST3
 15188          111074  010102                          MOV     R1,R2                   ;SET UP EXPECTED
 15189          111076  052702  000001                  BIS     #BIT0,R2                ;RIB SHOULD BE SET
 15190          111102  020102                          CMP     R1,R2                   ;IS RIB SET
 15191          111104  001406                          BEQ     300$                    ;BR, IF RIB WAS SET (GOOD)
 15192          111106  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 15196          111112                                  ERRHRD  ERRNO,T28RIB,EXPREC     ;RIB NOT SET AFTER READ REV
                111112  104456                                                          TRAP    C$ERHRD
                111114  001510                                                          .WORD   840
                111116  111534                                                          .WORD   T28RIB
                111120  015564                                                          .WORD   EXPREC
 15197          111122                          300$:   CKLOOP                          ;LOOP IF SELECTED
                111122  104406                                                          TRAP    C$CLP1
 15198          111124  012737  100010  111470          MOV     #100010,T28PK3          ;SPACE FORWARD,ACK, COMMAND
 15199          111132  012737  000005  111472          MOV     #5,T28RB                ;NUMBER OF RECORDS TO SPACE FORW.
 15200          111140  012704  111470                  MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 15201          111144  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 15202          111150  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 15203          111154  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 15204          111160  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
 15205          111164  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 15206          111166  001406                          BEQ     310$                    ;BR, IF OK
```

TEST  8: WRITE/READ TAPE MARK

```
15207 111170  005237  002212                  INC     FATFLG                  ;BUMP COUNT
15211 111174                                  ERRHRD  ERRNO,T28RDF,EXPREC     ;TSSR INCORRECT AFTER SPACE CMD.
      111174  104456                                                          TRAP    C$ERHRD
      111176  001511                                                          .WORD   841
      111200  111674                                                          .WORD   T28RDF
      111202  015564                                                          .WORD   EXPREC
15212 111204                          310$:   CKLOOP                          ;LOOP IF SELECTED
      111204  104406                                                          TRAP    C$CLP1
15213 111206  013701  111370                  MOV     T28BFR+6,R1             ;PICK UP XSTO
15214 111212  010102                          MOV     R1,R2                   ;SET UP EXPECTED
15215 111214  052702  100000                  BIS     #BIT15,R2               ;TMK SHOULD BE SET
15216 111220  020102                          CMP     R1,R2                   ;IS TMK SET
15217 111222  001406                          BEQ     320$                    ;BR, IF TMK WAS SET (GOOD)
15218 111224  005237  002212                  INC     FATFLG                  ;BUMP COUNT
15222 111230                                  ERRHRD  ERRNO,T28RRP,EXPREC     ;TMK NOT SET AFTER READ REV
      111230  104456                                                          TRAP    C$ERHRD
      111232  001512                                                          .WORD   842
      111234  113144                                                          .WORD   T28RRP
      111236  015564                                                          .WORD   EXPREC
15223 111240                          320$:   CKLOOP                          ;LOOP IF SELECTED
      111240  104406                                                          TRAP    C$CLP1
15224 111242  013701  111366                  MOV     T28BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
15225 111246  012702  000004                  MOV     #4.,R2                  ;SHOULD BE THE DIFFERENCE
15226 111252  020102                          CMP     R1,R2                   ;IS COUNTER CORRECT
15227 111254  001406                          BEQ     330$                    ;BR, IF COUNTER CORRECT
15228 111256  005237  002212                  INC     FATFLG                  ;BUMP COUNT
15232 111262                                  ERRHRD  ERRNO,T28PBP,EXPREC     ;RESIDUAL BYTE COUNTER NOT CORRECT
      111262  104456                                                          TRAP    C$ERHRD
      111264  001513                                                          .WORD   843
      111266  111611                                                          .WORD   T28PBP
      111270  015564                                                          .WORD   EXPREC
15233 111272                          330$:   CKLOOP                          ;LOOP IF SELECTED
      111272  104406                                                          TRAP    C$CLP1
15234 111274                                  ENDSUB                          ;<<<<<<<<<<< END SUBTEST >>>>>>>>>>>
      111274                                                                  L10133:
      111274  104403                                                          TRAP    C$ESUB
15235 111276  023727  002212  000017                 CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
15236 111304  103402                                BLO     999$                    ;BR, IF LESS THAN 25
15237 111306  004737  017272                        JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
15238 111312                          999$:
15239                                 ;
15240                                 ;
15241                                 ;
15242 111312  004737  016546                  JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
15243 111316  103002                          BCC     163$                    ;BR, IF NO LOOP REQUIRED
15244 111320  000137  106200                  JMP     T28LOOP                 ;EXECUTE AGAIN
15245 111324                          163$:
15246 111324                                  EXIT    TST                     ;ALL DONE THIS TEST
      111324  104432                                                          TRAP    C$EXIT
      111326  002256                                                          .WORD   L10130-.
15247
15248                                 ;+
15249                                 ;LOCAL STORAGE FOR THIS TEST
15250                                 ;-
15252 111330                                  .BLKB   10-<.-TSV2&7>
15254 111340                          T28PACKET:
15255 111340  100004                          .WORD   100004                  ;COMMAND PACKET FOR TEST
                                                                              ;WRITE CHARACTERISTICS COMMAND, WITH IE, ACK
```

TEST  8: WRITE/READ TAPE MARK

```
15256 111342  111350                    .WORD   T28DATA                 ;ADDRESS OF CHARACTERISTICS BLOCK
15257 111344  000000                    .WORD   0
15258 111346  000012                    .WORD   10.                     ;STARTING VALUE OF BLOCK SIZE
15259 111350                    T28DATA:                                ;CHARACTERISTICS DATA BLOCK
15260 111350  111362                    .WORD   T28BFR                  ;ADDRESS OF MESSAGE BUFFER
15261 111352  000000                    .WORD   0
15262 111354  000024                    .WORD   20.                     ;LENGTH OF MESSAGE BUFFER
15263 111356  000000                    .WORD   0
15264 111360  000000            T28DSW: .WORD   0                       ;SELECT DRIVE 0
15265 111362                    T28BFR: .BLKW   25.                     ;MESSAGE BUFFER
15266                                   ;
15267                                   ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
15268                                   ;
15270 111444                            .BLKB   10-<.-TSV2&7>
15272 111450                    T28PK2:
15273 111450  100006                    .WORD   100006                  ;WRITE SUB SYS MEM COMMAND, IE AND ACK
15274 111452  111500                    .WORD   T28BF2                  ;ADDRESS OF SELECT BLOCK DATA
15275 111454  000000                    .WORD   0
15276 111456  C00006                    .WORD   6.                      ;SIZE OF DATA PACKET
15277
15279 111460                            .BLKB   10-<.-TSV2&7>
15281 111470                    T28PK3:
15282 111470  100005                    .WORD   100005                  ;REREAD COMMAND,  AND ACK
15283 111472                    T28RB:
15284 111472  003114            T28WB:  .WORD   FREE                    ;ADDRESS OF WRITE BUFFER
15285 111474  000000                    .WORD   0
15286 111476  000000            T28SZ:  .WORD   0                       ;SIZE OF BUFFER (EXTENT)
15287                                   .EVEN
15288                                   ;
15289                                   ;
15290                                   ;
15291 111500                    T28BF2:
15292 111500      010           T28BS0: .BYTE   10                      ;BSEL0 AREA
15293 111501      200           T28BS1: .BYTE   200                     ;BSEL1 AREA
15294 111502  000000            T28S2:  .WORD   0                       ;SEL 2 AREA
15295 111504  000000            T28S3:  .WORD   0                       ;DATA AREA
15296                                   ;
15297                                   ;
15298                                   .EVEN
15299                                   ;TAPE MOTION PACKET COMMAND VALUES
15300
15301 111506                    T28IMV:
15302 111506  101411                    .WORD   101411                  ;ILLEGAL MODE BITS TEST DATA
15303 111510  102011                    .WORD   102011
15304 111512  103411                    .WORD   103411
15305 111514  177777                    .WORD   177777
15306 111516  100011            T28RN:  .WORD   100011                  ;WRITE TAPE MARK COMMAND
15307 111520  100411            T28WDR: .WORD   100411                  ;ERASE COMMAND
15308 111522  101011            T28CON: .WORD   101011                  ;WRITE TAPE MARK RETRY
15309 111524  177777                    .WORD   177777                  ;END OF DATA
15310
15311                                   ;
15312 111526  000000            T28CNT: .WORD   0                       ;TAPE TIMER COUNTER STORAGE AREA
15313 111530  000000            T28CNU: .WORD   0                       ;TAPE TIMER COUNTER STORAGE AREA
15314 111532  000000            T28DLY: .WORD   0                       ;DELAY COUNTER
15315                                   .EVEN
15316
```

TEST  8: WRITE/READ TAPE MARK

```
15317                                   ;+
15318                                   ;LOCAL TEXT MESSAGES FOR TEST
15319                                   ;-
15320
15321
15322 111534     124     141     160    T28RIB: .ASCIZ  'Tape Position Not Correct, RIB Should Be Set'
15323 111611     122     145     163    T28PBP: .ASCIZ  'Residual Byte Counter Register (RBPCR) Not Correct'
15324 111674     124     123     123    T28RDF: .ASCIZ  'TSSR Incorrect After READ REVERSE Into TAPE MARK'
15325 111755     124     123     123    T28RDG: .ASCIZ  'TSSR Incorrect After SPACE Command Into TAPE MARK'
15326 112037     124     123     123    T28WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
15327 112114     111     154     154    T28LOG: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
15328 112175     127     122     111    T28SSR: .ASCIZ  'WRITE MISCELLANEOUS Command Not Accepted'
15329 112246     124     123     123    T28WDE: .ASCIZ  'TSSR Not Correct After READ DATA Command, Into TAPE MARK'
15330 112337     124     141     160    T28BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
15331 112404     124     123     123    T28TM:  .ASCIZ  'TSSR Not Correct After FORMAT Command Reject'
15332 112461     122     145     167    T28RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
15333 112530     104     162     151    T28OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
15334 112603     124     123     123    T28WDC: .ASCIZ  'TSSR Not Correct After WRITE TAPE MARK Command'
15335 112662     103     126     103    T28VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
15336 112735     124     115     113    T28TMK: .ASCIZ  'TMK Not Set After WRITE TAPE MARK Command'
15337 113007     124     115     113    T28RRM: .ASCIZ  'TMK Not Set After READ REVERSE Into TAPE MARK'
15338 113065     124     115     113    T28RRN: .ASCIZ  'TMK Not Set After SPACE REVERSE Into TAPE MARK'
15339 113144     124     115     113    T28RRP: .ASCIZ  'TMK Not Set After READ FORWARD Into TAPE MARK'
15340 113222     104     141     164    T28DTR: .ASCIZ  'Data Transferred On READ REVERSE Into A TAPE MARK'
15341 113304     104     141     164    T28DTA: .ASCIZ  'Data Compare Error, Data Read From Tape Not Equal To Written'
15342 113401     127     162     151    TST28ID:        .ASCIZ  'Write/Read Tape Mark'
15343                                           .EVEN
15344                                   ;+
15345                                   ;
15346                                   ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
15347                                   ;WRITE SUBSYSTEM MEMORY COMMAND
15348                                   ;
15349                                   ;-
15350
15351 113426                           T28REST:
15352 113426                                   SAVREG                          ;SAVE THE REGISTERS
15353 113432  012701  111340                   MOV     #T28PACKET,R1           ;START OF THE PACKET
15354 113436  012721  100004                   MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK.
15355 113442  012721  111350                   MOV     #T28DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
15356 113446  005021                           CLR     (R1)+                   ;EXTENDED ADDRESS
15357 113450  012721  000012                   MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
15358 113454  012721  111362                   MOV     #T28BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
15359 113460  005021                           CLR     (R1)+
15360 113462  012721  000024                   MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
15361 113466  005021                           CLR     (R1)+
15362 113470  012711  000000                   MOV     #0,(R1)                 ;SELECT DRIVE ZERO
15363 113474  012702  000030                   MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
15364 113500  012762  177777  111362  64$:     MOV     #177777,T28BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
15365 113506  005742                           TST     -(R2)                   ;NEXT LOCATION
15366 113510  020227  000000                   CMP     R2,#0                   ;CHECK FOR END
15367 113514  001371                           BNE     64$                     ;KEEP GOING UNTIL DONE
15368 113516  000207                           RTS     PC                      ;RETURN
15369
15370
15371 113520                           T28RT2:
15372 113520                                   SAVREG                          ;SAVE THE REGISTERS
15373 113524  012701  111450                   MOV     #T28PK2,R1              ;START OF THE PACKET
```

```
TEST  8: WRITE/READ TAPE MARK

 15374 113530  012721  100006                  MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK.
 15375 113534  012721  111500                  MOV     #T28BF2,(R1)+           ;ADDRESS OF DATA BLOCK
 15376 113540  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
 15377 113542  012721  000006                  MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
 15378 113546  005021                          CLR     (R1)+
 15379 113550  012701  111500                  MOV     #T28BF2,R1              ;POINT TO DATA SEL AREA
 15380 113554  005021                          CLR     (R1)+
 15381 113556  005011                          CLR     (R1)
 15382 113560  000207                          RTS     PC                      ;RETURN
 15383 113562                          T28RT3:
 15384 113562                                  SAVREG
 15385 113566  012701  111470                  MOV     #T28PK3,R1              ;GET PACKET ADDRESS
 15386 113572  005021                          CLR     (R1)+                   ;CLEAR COMMAND AREA
 15387 113574  005021                          CLR     (R1)+                   ;CLEAR ADDRESS AREA
 15388 113576  005021                          CLR     (R1)+                   ;CLEAR EXTENDED ADDRESS AREA
 15389 113600  005011                          CLR     (R1)                    ;SIZE OF DATA TRANSFER
 15390 113602  000207                          RTS     PC                              ;RETURN
 15391 113604                                  ENDTST
       113604                                                                          L10130:
       113604  104401                                                                          TRAP    C$ETST
 15392 113606                                  ENDMOD
 15393                                         .TITLE  TSV6 - PARAMETER CODING
 15399
 15404
 15410
 15411 113606                                  BGNMOD  TSV6
       113606                          TSV6::
 15412
 15413                                         .SBTTL  HARDWARE PARAMETER CODING SECTION
 15414
 15415                                  ;++
 15416                                  ; THE HARDWARE PARAMETER CODING SECTION CONTAINS MACROS
 15417                                  ; THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES.  THE
 15418                                  ; MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
 15419                                  ; INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES.  THE
 15420                                  ; MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
 15421                                  ; WITH THE OPERATOR.
 15422                                  ;--
 15423 113606                                  BGNHRD
       113606  000010                          .WORD L10134-L$HARD/2
       113610                          L$HARD::
 15424
 15425 113610                                  GPRMA   HPM1,0,0,160010,177776,YES      ;GET TSBA/TSDB REGISTER ADDRESS.
       113610  000031                          .WORD   T$CODE
       113612  113630                          .WORD   HPM1
       113614  160010                          .WORD   T$LOLIM
       113616  177776                          .WORD   T$HILIM
 15426 113620                                  GPRMA   HPM2,2,0,0,776,YES              ;GET VECTOR ADDRESS.
       113620  001031                          .WORD   T$CODE
       113622  113664                          .WORD   HPM2
       113624  000000                          .WORD   T$LOLIM
       113626  000776                          .WORD   T$HILIM
 15427                                         ;GPRMD  HPM3,4,0,340,0,7,YES            ;GET INTERRUPT PRIORITY.
 15428 113630                                  ENDHRD
                                               .EVEN
       113630                          L10134:
 15429 113630     104     105     126  HPM1:   .ASCIZ  'DEVICE ADDRESS (TSBA/TSDB) '
```

HARDWARE PARAMETER CODING SECTION

```
 15430 113664     111     116     124  HPM2:   .ASCIZ  'INTERRUPT VECTOR   '
 15431 113710     111     116     124  HPM3:   .ASCIZ  'INTERRUPT PRIORITY     '
 15432                                         .EVEN
```

SOFTWARE PARAMETER CODING SECTION

```
                                        .SBTTL  SOFTWARE PARAMETER CODING SECTION

                                ;**
                                ; THE SOFTWARE PARAMETER CODING SECTION CONTAINS MACROS
                                ; THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES.  THE
                                ; MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
                                ; INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES.  THE
                                ; MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
                                ; WITH THE OPERATOR.
                                ;--
113740                                  BGNSFT
113740  000003                          .WORD L10135-L$SOFT/2
113742                          L$SOFT::
                                ;       GPRML   SPM1,0,-1,YES                   ; GET TRANSPORT TEST FLAG.
113742                                  GPRML   SPM4,2,-1,YES                   ; GET ITERATION CONTROL.
113742  001130                          .WORD   T$CODE
113744  114000                          .WORD   SPM4
113746  177777                          .WORD   -1
                                ;       GPRMD   SPM6,4,D,7777,0,7777,YES        ; GET LOCAL ERROR LIMIT
                                ;       GPRMD   SPM7,6,D,7777,0,7777,YES        ; GET GLOBAL ERROR LIMIT
113750                                  ENDSFT
                                        .EVEN
113750                          L10135:

113750  105  116  101  SPM1:    .ASCIZ  'ENABLE TRANSPORT TESTS '
114000  111  116  110  SPM4:    .ASCIZ  'INHIBIT ITERATIONS     '
114030  120  105  122  SPM6:    .ASCIZ  'PER TEST ERROR LIMIT   '
114060  120  105  122  SPM7:    .ASCIZ  'PER UNIT ERROR LIMIT   '
                                        .SBTTL  PATCH AREA

                                ;
                                ; FINALLY A GENEROUS PATCH AREA.
                                ;
                                ; AND AN ADJUSTMENT TO ACCOUNT FOR THE "LASTAD BIT7" HACK
                                ; DESCRIBED IN "SUPPRG.MEM" (FOR REV C).
                                ;

114110                          PATCH::

                                        .BLKW   32.

                        114400          .=.!377+1
114400                                  LASTAD          ;SET LAST USED ADDRESS.
                                        .EVEN
114400  000000                          .WORD   0
114402  000000                          .WORD   0
114404                          L$LAST::
114404                                  ENDMOD
                        000001          .END
```

Symbol table

```
ADDSSR  012216 G        C$AU   = 000052        DEVDRO  024306          FREE    003114 G        INCERK  017134
ADR    = 000020 G       C$AUTO= 000061        DEVNRD  024225          FREEHI  003120          INTCPC  016240
AMBTSS  006725          C$BRK  = 000022        DEVNXR  024143          FRESIZ  003116 G        INTFLA  016235
ASSEMB= 000010          C$BSEG= 000004        DEVONL  024073          FUSI    004115          INTMAS  016234
A1716  = 000003         C$BSUB= 000002        DEVSUM  024036          F$AU   = 000015          INTR    016306 G
BADDAT  003146 G        C$CEFG= 000045        DFPTBL  002146 G        F$AUTO= 000020          INTREC  002214 G
BADSSR  015770 G        C$CLCK= 000062        DIAGMC= 000000          F$BGN  = 000040          INTVEC  016236
BDVPCR= 177520 G        C$CLEA= 000012        DICEC  = 000001         F$CLEA= 000007          INTX    004276
BENBSW  002220 G        C$CLOS= 000035        DSBINT  016274          F$DU   = 000016          INVERT  021252 G
BIE    = 040000         C$CLP1= 000006        DUAD12  004641          F$END  = 000041          IOKCKI= 000200
BIT0   = 000001 G        C$CVEC= 000036        DUFLG   003102 G        F$HARD= 000004          IOKSTP= 000001
BIT00  = 000001 G        C$DCLN= 000044        DUMMY   003052          F$HW   = 000013          IPRI    002202 G
BIT01  = 000002 G        C$DODU= 000051        EF.CON= 000036 G        F$INIT= 000006          ISR    = 000100 G
BIT02  = 000004 G        C$DRPT= 000024        EF.NEW= 000035 G        F$JMP  = 000050          IVEC    002200 G
BIT03  = 000010 G        C$DU   = 000053       EF.PWR= 000034 G        F$MOD  = 000000          IXE    = 004000 G
BIT04  = 000020 G        C$EDIT= 000003        EF.RES= 000037 G        F$MSG  = 000011          I$AU   = 000041
BIT05  = 000040 G        C$ERDF= 000055        EF.STA= 000040 G        F$PROT= 000021          I$AUTO= 000041
BIT06  = 000100 G        C$ERHR= 000056        EMAXDU  017067          F$PWR  = 000017          I$CLN  = 000041
BIT07  = 000200 G        C$ERRO= 000060        EN     = 000000         F$RPT  = 000012          I$DU   = 000041
BIT08  = 000400 G        C$ERSF= 000054        ENAINT  016242          F$SEG  = 000003          I$HRD  = 000041
BIT09  = 001000 G        C$ERSO= 000057        ENVIRN  020720          F$SOFT= 000005          I$INIT= 000041
BIT1   = 000002 G        C$ESCA= 000010        EPRTSW  002170 G        F$SRV  = 000010          I$MOD  = 000041
BIT10  = 002000 G        C$ESEG= 000005        EPRT1   006356          F$SUB  = 000002          I$MSG  = 000041
BIT11  = 004000 G        C$ESUB= 000003        EPRT2   006446          F$SW   = 000014          I$PROT= 000040
BIT12  = 010000 G        C$ETST= 000001        ERCM    012023          F$TEST= 000001          I$PTAB= 000041
BIT13  = 020000 G        C$EXIT= 000032        ERRHI   002226 G        GDDAT   003150 G        I$PWR  = 000041
BIT14  = 040000 G        C$GETB= 000026        ERRK    017046          GERRMA  002164 G        I$RPT  = 000041
BIT15  = 100000 G        C$GETW= 000027        ERRLO   002230 G        GETPAT  020264 G        I$SEG  = 000041
BIT2   = 000004 G        C$GMAN= 000043        ERRNO  = 001513         GETSEL  020346 G        I$SETU= 000041
BIT3   = 000010 G        C$GPHR= 000042        ERRVEC= 000004 G        G$CNTO= 000200          I$SFT  = 000041
BIT4   = 000020 G        C$GPLO= 000030        ERTABE  003366          G$DELM= 000372          I$SRV  = 000041
BIT5   = 000040 G        C$GPRI= 000040        ERTABL  003166          G$DISP= 000003          I$SUB  = 000041
BIT6   = 000100 G        C$INIT= 000011        ESUM    017050          G$EXCP= 000400          I$TST  = 000041
BIT7   = 000200 G        C$INLP= 000020        EVL    = 000004 G       G$HILI= 000002          J$JMP  = 000167
BIT8   = 000400 G        C$MANI= 000050        EXBCNT= 000010          G$LOLI= 000001          KIPAR0= 172340
BIT9   = 001000 G        C$MEM  = 000031       EXIT    035204          G$NO   = 000000          KIPAR1= 172342
BOE    = 000400 G        C$MSG  = 000023       EXPBRE  015572 G        G$OFFS= 000400          KIPAR2= 172344
BRINIT  004455          C$OPEN= 000034        EXPD    002222 G        G$OFSI= 000376          KIPAR3= 172346
BSEL0  = 000000         C$PNTB= 000014        EXPGOT  004531          G$PRMA= 000001          KIPAR4= 172350
BSEL1  = 000001         C$PNTF= 000017        EXPGT2  004565          G$PRMD= 000002          KIPAR5= 172352
CHKAMB  016134          C$PNTS= 000016        EXPMSG  002312 G        G$PRML= 000000          KIPAR6= 172354
CHKMAN  020570 G        C$PNTX= 000015        EXPREC  015564 G        G$RADA= 000140          KIPAR7= 172356
CHKTSS  016426          C$QIO  = 000377       EXTA    005770          G$RADB= 000000          KIPDR0= 172300
CKDROP  017272          C$RDBU= 000007        EXTEND  005766          G$RADD= 000040          KIPDR1= 172302
CKEMAX  017172          C$REFG= 000047        EXTFEA  002216 G        G$RADL= 000120          KIPDR2= 172304
CKMSG   011450 G        C$RESE= 000033        E$END  = 002100         G$RADO= 000020          KIPDR3= 172306
CKMSG2  011570 G        C$REVI= 000003        E$LOAD= 000035          G$XFER= 000004          KIPDR4= 172310
CKRAM   011204 G        C$RFLA= 000021        FATAL   035304          G$YES  = 000010          KIPDR5= 172312
CKRAM2  011314 G        C$RPT  = 000025       FATERR= 000060          HIADDR= 001400          KIPDR6= 172314
CMDPKT  022170 G        C$SEFG= 000046        FATFLG  002212 G        HOE    = 100000 G       KIPDR7= 172316
CMPMEM  017750          C$SPRI= 000041        FERCM   012012          HPM1    113630          KTENAB  003124 G
CONFIG  017340          C$SVEC= 000037        FIFEXP  012260 G        HPM2    113664          KTFLG   003122 G
COUNT   002300 G        C$TPRI= 000013        FIF1MS  012332          HPM3    113710          KTINIT  021100
CSRADD  002176 G        DATA    002302 G      FIF2MS  012401          IBE    = 010000 G       KTOFF   017364
CTAB    003154 G        DATASC  020322         FILLME  017512          IDU    = 000040 G       KTON    017346
CTABE   003166 G        DEBUGM  011722         FNOINT  004213          IER    = 020000 G       LERRMA  002162 G
CTABM   003154 G        DEVCNT  002210 G       FORCER  002166 G        IFAULT  004254          LISTAL= 000001
```

Symbol table

```
LOE    - 040000 G      L$UNIT  002012 G      L10071  056522        M8189   005643        PRBEXP  015560
LOOPCN   002206 G      L10000  002154        L10072  050564        NBA    - 002000        PRBMSG  015426
LOOPCO   013216        L10001  002166        L10073  051164        NEWPAS  022720        PRBREC  015562
LOOPFL   003152 G      L10002  005764        L10074  051640        NODEV   003104 G      PRBTOT  015513
LOT    - 000010 G      L10003  012134        L10075  052304        NOINIT  004333        PRBYTE  015212 G
L$ACP    002110 G      L10004  012152        L10076  053044        NOINTR  004217        PRI    - 002000 G
L$APT    002036 G      L10005  012170        L10077  054004        NOITS   002160 G      PRIADD  010250
L$AU     023262 G      L10006  012176        L10100  054324        NOMAN   020624        PRIAO   010320
L$AUT    002070 G      L10007  012214        L10101  054726        NOMEM   005456        PRIBXO  007702 G
L$AUTO   023466 G      L10010  012232        L10102  076104        NP.IR - 000200        PRIEQU  010150
L$CCP    002106 G      L10011  012256        L10103  057464        NP.LOO- 000040        PRIPKT  007460 G
L$CLEA   023546 G      L10012  012330        L10104  060332        NP.OUT- 000100        PRIRAM  010156
L$CO     002032 G      L10013  012500        L10105  061224        NP.WRP- 000020        PRITAD  010364
L$DEPO   002011 G      L10014  013214        L10106  062152        NSI     004150        PRITSS  006022
L$DESC   003400 G      L10015  014042        L10107  062730        NSINIT  004405        PRITO   010446
L$DESP   002076 G      L10016  014064        L10110  063572        NUL     004525        PRIT1   010511
L$DEVP   002060 G      L10017  015570        L10111  064444        NULCR   004526        PRIXOR  010032 G
L$DISP   002124 G      L10020  015576        L10112  065316        NXM    - 004000        PRIO0  - 000000 G
L$DLY    002116 G      L10021  015604        L10113  066172        NXMFLG  003126 G      PRIO1  - 000040 G
L$DTP    002040 G      L10022  015616        L10114  067046        NXMMI   003132 G      PRIO2  - 000100 G
L$DTYP   002034 G      L10023  015640        L10115  067716        NXMLO   003130 G      PRIO3  - 000140 G
L$DU     023360 G      L10024  015666        L10116  070650        NXMTST  022362        PRIO4  - 00C200 G
L$DUT    002072 G      L10025  016026        L10117  071700        NXR     003736        PRIO5  - 000240 G
L$DVTY   003372 G      L10026  016336        L10120  072260        NXRERR  005734 G      PRIO6  - 000300 G
L$EF     002052 G      L10030  023212        L10121  072734        NXRX    003775        PRIO7  - 000340 G
L$ENVI   002044 G      L10031  023356        L10122  106142        NXTU    022732        PRMESS  014332
L$ETP    002102 G      L10032  023464        L10123  076526        OFL    - 000100        PRMNO   002310 G
L$EXP1   002046 G      L10033  023544        L10124  077310        ONEFIL- 000000        PRMSGE  014642 G
L$EXP4   002064 G      L10034  023572        L10125  100132        O$APTS- 000000        PRMSGO  015022
L$EXPS   002066 G      L10035  024034        L10126  101034        O$AU   - 000001        PRMSG1  015067
L$HARD   113610 G      L10036  025470        L10127  102564        O$BGNR- 000001        PRMSG2  015125
L$HIME   002120 G      L10037  030150        L10130  113604        O$BGNS- 000001        PROASC  014510
L$HPCP   002016 G      L10040  026076        L10131  106542        O$DU   - 000001        PR1ASC  014555
L$HPTP   002022 G      L10041  026420        L10132  107022        O$ERRT- 000000        PST32W  003142 G
L$HW     002146 G      L10042  027000        L10133  111274        O$GNSW- 000001        PUNIT   023214
L$ICP    002104 G      L10043  035330        L10134  113630        O$POIN- 000001        PW.D11- 000021
L$INIT   022466 G      L10044  030556        L10135  113750        O$SETU- 000000        PW.D13- 000022
L$LADP   002026 G      L10045  031426        MEMADD  014044 G      PASRPT  022764        PW.D22- 000020
L$LAST   114404 G      L10046  032246        MEMCK   022206 G      PATCH   114110 G      PW.NOP- 000000
L$LOAD   002100 G      L10047  032462        MENASC  020537        PATDAT  020320        PW.NO1- 000023
L$LUN    002074 G      L10050  033030        MENERR  020464        PC.ERA- 002400        PW.RDE- 000024
L$MREV   002050 G      L10051  033374        MENRES  020566        PC.IER- 002000        PW.RDR- 000001
L$NAME   002000 G      L10052  047574        MMVEC  - 000250        PC.NOO- 001000        PW.RDS- 000005
L$PRIO   002042 G      L10053  036002        MSA.FR- 000006        PC.REL- 000000        PW.RFI- 000003
L$PROT   022456 G      L10054  036562        MSA.NO- 000000        PC.REW- 000400        PW.WCT- 000006
L$PRT    002112 G      L10055  037336        MSA.NR- 000004        PKBCNT- 000006        PW.WFI- 000004
L$REPP   002062 G      L10056  040040        MSA.VO- 000002        PKHI   - 000004        PW.WFM- 000007
L$REV    002010 G      L10057  040504        MSGEXP  012234 G      PKLOW  - 000002        PW.WMI- 000010
L$RPT    023574 G      L10060  041140        MSGLOO  013154 G      PKTADD  007644        PW.WNP- 000011
L$SOFT   113742 G      L10061  041574        MSGSTA  012440 G      PKTFRM  007606        PW.WTR- 000002
L$SPC    002056 G      L10062  042166        MSGSUB  014032 G      PKTGET  012154 G      P.ACK  - 100000
L$SPCP   002020 G      L10063  042670        MS.ATT- 000006        PKTMES  012200 G      P.CMD  - 000037
L$SPTP   002024 G      L10064  043134        MS.EXT- 000200        PKTRAM  004743 G      P.CONT- 000012
L$STA    002030 G      L10065  043406        MS.RSD- 000001        PKTSSR  012136 G      P.CVC  - 040000
L$SW     002156 G      L10066  043672        MS.RSF- 000020        PNT    - 001000 G      P.FMT  - 000140
L$TEST   002114 G      L10067  044172        MS.RST- 000010        PRAMPK  014066        P.FORM- 000011
L$TIML   002014 G      L10070  044656        M8186   005552        PRASC   014613        P.GETS- 000017
```

Symbol table

```
P.IE  = 000200          SPM6    114030          TSREJ = 000006          T$$CLE= 010034          T22WRT  027170
P.INIT= 000013          SPM7    114060          TSSDEF  006676          T$$DU = 010032          T23A    003134 G
P.MODE= 007400          SR0   = 177572          TSSR  = 000002 G        T$$HAR= 010134          T23AM3  034220
P.OPP = 020000          SR1   = 177574          TSSR8I  003500 G        T$$HW = 010000          T23B    003136 G
P.POSI= 000010          SR2   = 177576          TSSRFO  006505          T$$INI= 010030          T23BA   034605
P.READ= 000001          SR3   = 172516          TSSRM = 000003 G        T$$MSG= 010025          T23BFR  033462
P.SWB = 010000          SSR   = 000200          TSSX    004016          T$$PRO= 010027          T23BF2  033602
P.WRIT= 000005          STATCO  012502          TSTBLK  002742 G        T$$RPT= 010035          T23BS0  033602
P.WRTC= 000004          SVCGBL= 000000          TSTCNT  002204 G        T$$SOF= 010135          T23BS1  033603
P.WRTS= 000006          SVCINS= 000000          TSTEND  017010          T$$SRV= 010026          T23CHK  035142
QVP     002174 G        SVCSUB= 000001          TSTFLA  002304 G        T$$SUB= 010133          T23CON  033620
RAMASC  014246          SVCTAG= 000000          TSTLOO  016546 G        T$$SW = 010001          T23DAT  033450
RAMDAT  002232 G        SVCTST= 000001          TSTPTR  002306 G        T$$TES= 010130          T23DSW  033460
RAMERR  015600 G        S$LSYM= 010000          TSTSET  016600 G        T1      024356 G        T23EOT  033744
RAMEXP  015620 G        S0.IDB= 000010          TST21I  025314          T2      025472 G        T23ET   033657
RAMFOR  010206          S0.IFB= 000002          TST22I  027757          T2.1    025522          T23LOO  030222
RAMSIZ  002272 G        S0.IFP= 000001          TST23I  034746          T2.2    026114          T23OFL  034266
RAMTAD  015606 G        S0.ILD= 000020          TST24I  047342          T2.3    026436          T23PAC  033440
RCVMIA  002274 G        S0.ION= 000040          TST25I  056320          T21AM3  025173          T23PK2  033550
RCVLOA  002276 G        S0.IRD= 000100          TST26I  075707          T21BFR  024774          T23PK3  033570
RDERR   005204          S0.IRW= 000004          TST27I  105743          T21BF2  025070          T23RES  034762
RECMSG  002456 G        S0.ISP= 000200          TST28I  113401          T21BS0  025070          T23RNC  034145
RECV    002224 G        S1.ICE= 002000          TSV2    002000 G        T21BS1  025071          T23RSZ  033600
REGSAV  020230          S1.IEO= 010000          TSV3    002166 G        T21DAT  024760          T23RT2  035054
RETERR  005370          S1.IFM= 001000          TSV4    022456 G        T21DLY  024772          T23RT3  035116
RETRY   035206          S1.IME= 000400          TSV6    113606 G        T21DSW  024770          T23RWN  034076
REWIND  011104 G        S1.IID= 004000          TSV7    024356 G        T21LOO  024406          T23SSR  033624
RMCHBE= 000167          S1.I1R= 020000          TTIBFR= 177562 G        T21OFL  025273          T23SZ   033576
RMCHEN= 000200          S1.I2R= 040000          TTICSR= 177560 G        T21PAC  024750          T23S2   033604
RMMSGB= 000215          S1.PAR= 100000          TTIVEC= 000060 G        T21PK2  025060          T23S3   033606
RMMSGE= 000234          S2.ATI= 000010          T$ARGC= 000003          T21RES  025336          T23TM   034022
RMPKTB= 000201          S2.BTI= 000004          T$CODE= 001130          T21RT2  025426          T23TMP  033610
RMPKTE= 000210          S2.DIM= 000200          T$ERRN= 001513          T21SSR  025076          T23VCK  034532
RMR   = 010000          S2.ILW= 000100          T$EXCP= 000000          T21S2   025072          T23WB   033572
RWPACK  011200          S2.INR= 000020          T$FLAG= 000040          T21S3   025074          T23WD   033614
SC    = 100000          S2.OUT= 000040          T$GMAN= 000000          T22AM3  027275          T23WDC  034430
SCE   = 020000          S2.UND= 000003          T$HILI= 000776          T22BFR  027062          T23WDD  034341
SCHERR  005276          TBLEND= 003052 G        T$LAST= 000001          T22BF2  027160          T23WDR  033616
SCME    005011          TCOASC  006566          T$LOLI= 000000          T22BS0  027160          T23WRT  033612
SDELAY  010750          TCOCOD  006766          T$LSYM= 010000          T22BS1  027161          T23WSS  034657
SELASC  020532          TEMP1   003106 G        T$LTNO= 000010          T22DAT  027050          T24AM3  046330
SELDAT= 000004          TEMP2   003110 G        T$NEST= 177777          T22FOR  027174          T24BA   046662
SEL2  = 000002          TERCLS= 000016          T$NSO = 000000          T22LOO  025522          T24BFR  044742
SETMAP  017406          TESTNO= 000010          T$NS1 = 000005          T22OFL  027375          T24BF2  045060
SETU    023016          TEXASC  006525          T$NS2 = 000002          T22PAC  027040          T24BOT  045723
SFFMSG  012172 G        TFCASC  006627          T$PTNU= 000000          T22PK2  027150          T24BSO  045060
SFHERR  003703          TIMEXP  015642 G        T$SAVL= 177777          T22POS  027172          T24BS1  045061
SFIERR  003650          TIMSGO  015670          T$SEGL= 177777          T22RD   027166          T24CON  045072
SFIMSG  012124 G        TINERR  012111          T$SUBN= 000003          T22RES  030012          T24DAT  044730
SFPTBL  002156 G        TMPBFR  002622 G        T$TAGL= 177777          T22RT2  030104          T24DLY  045076
SIFLAG  003144 G        TNAM    016774          T$TAGN= 010136          T22RWJ  027544          T24DSW  044740
SIMSG   012056          TRANST  002156 G        T$TEMP= 000000          T22SSR  027200          T24DTA  045770
SKIPT   003370          TSBA  = 000000 G        T$TEST= 000010          T22S2   027162          T24EOT  046056
SOFINI  016064 G        TSBAH = 000001 G        T$TSTM= 177777          T22S3   027164          T24ILA  045452
SPACE   010556 G        TSDB  = 000000 G        T$TSTS= 000001          T22TM   027450          T24LON  047022
SPM1    113750          TSDBH = 000001 G        T$$AU = 010031          T22VCK  027617          T24LOO  035376
SPM4    114000          TSFCOD  007326          T$$AUT= 010033          T22WLK  027672          T24LOP  047104
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Symbol table

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T24LOQ | 045536 | T25SSR | 055154 | T26WDC | 075020 | T27WDR | 103000 | T39BFR | 021436 | | | | | | |
| T24LOR | 045152 | T25SZ | 055126 | T26WDD | 074730 | T27WNG | 103014 | T39BS0 | 021430 | | | | | | |
| T24NEF | 045100 | T25S2 | 055132 | T26WDE | 074123 | T27WRF | 105566 | T39BS1 | 021431 | | | | | | |
| T24NXM | 045311 | T25S3 | 055134 | T26WDF | 073731 | T27WSS | 104722 | T39BS2 | 021432 | | | | | | |
| T24OFL | 046375 | T25TM | 055362 | T26WNG | 073166 | T28BFR | 111362 | T39DLY | 021414 | | | | | | |
| T24PAC | 044720 | T25WB | 055122 | T26WSS | 075221 | T28BF2 | 111500 | T39DSW | 022140 | | | | | | |
| T24PBP | 047166 | T25WDC | 056247 | T27AM3 | 104307 | T28BOT | 112337 | T39DTA | 022130 | | | | | | |
| T24PK2 | 045030 | T25WDE | 055235 | T27BA | 104647 | T28BS0 | 111500 | T39EAI | 022136 | | | | | | |
| T24PK3 | 045050 | T25WDR | 055140 | T27BFR | 102652 | T28BS1 | 111501 | T39PAC | 021420 | | | | | | |
| T24RB | 045052 | T25WNG | 055525 | T27BF2 | 102770 | T28CNT | 111526 | T39PK2 | 022120 | | | | | | |
| T24RES | 047410 | T25WNH | 055700 | T27BOT | 103661 | T28CNU | 111530 | T39PK3 | 022150 | | | | | | |
| T24RN | 045066 | T26AM3 | 074606 | T27BS0 | 102770 | T28CON | 111522 | T39PK4 | 022160 | | | | | | |
| T24RNC | 046255 | T26BA | 075146 | T27BS1 | 102771 | T28DAT | 111350 | T39SIZ | 022166 | | | | | | |
| T24RT2 | 047502 | T26BFR | 073022 | T27CNT | 103006 | T28DLY | 111532 | T39TAD | 021430 | | | | | | |
| T24RT3 | 047544 | T26BF2 | 073140 | T27CNU | 103010 | T28DSW | 111360 | T39WR | 022162 | | | | | | |
| T24RWN | 046206 | T26BOT | 074175 | T27CON | 103002 | T28DTA | 113304 | T4 | 035332 | G | | | | | |
| T24SSR | 045617 | T26BS0 | 073140 | T27DAT | 102640 | T28DTR | 113222 | T4.1 | 035376 | | | | | | |
| T24SZ | 045056 | T26BS1 | 073141 | T27DLY | 103012 | T28IMV | 111506 | T4.10 | 042706 | | | | | | |
| T24S2 | 045062 | T26CNT | 073156 | T27DSW | 102650 | T28LOO | 106200 | T4.11 | 043152 | | | | | | |
| T24S3 | 045064 | T26CNU | 073160 | T27DTA | 105646 | T28LOQ | 112114 | T4.12 | 043424 | | | | | | |
| T24TM | 046133 | T26DAT | 073010 | T27EOT | 104031 | T28OFL | 112530 | T4.13 | 043710 | | | | | | |
| T24TRL | 047254 | T26DLY | 073164 | T27LON | 105011 | T28PAC | 111340 | T4.14 | 044210 | | | | | | |
| T24VCK | 046607 | T26DSW | 073020 | T27LOO | 076146 | T28PBP | 111611 | T4.2 | 036020 | | | | | | |
| T24WB | 045052 | T26DTA | 074242 | T27LOP | 105073 | T28PK2 | 111450 | T4.3 | 036600 | | | | | | |
| T24WDC | 046536 | T26EOT | 074330 | T27LOQ | 103455 | T28PK3 | 111470 | T4.4 | 037354 | | | | | | |
| T24WDD | 046450 | T26LON | 075310 | T27LOR | 103330 | T28RB | 111472 | T4.5 | 040056 | | | | | | |
| T24WDE | 045651 | T26LOO | 056570 | T27NEF | 105331 | T28RDF | 111674 | T4.6 | 040522 | | | | | | |
| T24WDF | 045375 | T26LOP | 075372 | T27OFL | 104356 | T28RDG | 111755 | T4.7 | 041156 | | | | | | |
| T24WDG | 045222 | T26LOQ | 074006 | T27PAC | 102630 | T28RES | 113426 | T4.8 | 041612 | | | | | | |
| T24WDR | 045070 | T26LOR | 073661 | T27PBP | 105155 | T28RIB | 111534 | T4.9 | 042204 | | | | | | |
| T24WSS | 046733 | T26NEF | 073254 | T27PK2 | 102740 | T28RN | 111516 | T5 | 047576 | G | | | | | |
| T25BFR | 055012 | T26NEQ | 075630 | T27PK3 | 102760 | T28RRM | 113007 | T5.1 | 047626 | | | | | | |
| T25BF2 | 055130 | T26OFL | 074655 | T27RB | 102762 | T28RRN | 113065 | T5.2 | 050602 | | | | | | |
| T25BNC | 055610 | T26PAC | 073000 | T27RDF | 103102 | T28RRP | 113144 | T5.3 | 051202 | | | | | | |
| T25BOT | 055315 | T26PBP | 075454 | T27RES | 105764 | T28RT2 | 113520 | T5.4 | 051656 | | | | | | |
| T25BS0 | 055130 | T26PK2 | 073110 | T27RN | 102776 | T28RT3 | 113562 | T5.5 | 052322 | | | | | | |
| T25BS1 | 055131 | T26PK3 | 073130 | T27RNC | 104234 | T28RWN | 112461 | T5.6 | 053062 | | | | | | |
| T25CNT | 055150 | T26RB | 073132 | T27RRF | 103151 | T28SSR | 112175 | T5.7 | 054022 | | | | | | |
| T25CN2 | 055146 | T26RDF | 073336 | T27RT2 | 106056 | T28SZ | 111476 | T5.8 | 054342 | | | | | | |
| T25CON | 055142 | T26RES | 075720 | T27RT3 | 106120 | T28S2 | 111502 | T6 | 056524 | G | | | | | |
| T25DAT | 055000 | T26RN | 073146 | T27RWN | 104165 | T28S3 | 111504 | T6.1 | 056570 | | | | | | |
| T25DLY | 055152 | T26RNC | 074533 | T27SC | 103246 | T28TM | 112404 | T6.10 | 066210 | | | | | | |
| T25DSW | 055010 | T26RRF | 073405 | T27SCF | 105427 | T28TMK | 112735 | T6.11 | 067064 | | | | | | |
| T25LOO | 047626 | T26RRG | 073502 | T27SSR | 103536 | T28VCK | 112662 | T6.12 | 067734 | | | | | | |
| T25NEF | 055763 | T26RSZ | 073162 | T27SZ | 102766 | T28WB | 111472 | T6.13 | 070666 | | | | | | |
| T25NET | 055451 | T26RT2 | 076012 | T27S2 | 102772 | T28WDC | 112603 | T6.14 | 071716 | | | | | | |
| T25OFL | 056174 | T26RT3 | 076054 | T27S3 | 102774 | T28WDE | 112246 | T6.15 | 072276 | | | | | | |
| T25PAC | 054770 | T26RWN | 074464 | T27TIM | 103754 | T28WDF | 112037 | T6.2 | 057502 | | | | | | |
| T25PK2 | 055100 | T26SC | 073577 | T27TM | 104110 | T28WDR | 111520 | T6.3 | 060350 | | | | | | |
| T25PK3 | 055120 | T26SSR | 074067 | T27TRL | 105243 | T3 | 030152 | G | T6.4 | 061242 | | | | | |
| T25RB | 055122 | T26SZ | 073136 | T27TSA | 105504 | T38FLG | 003140 | G | T6.5 | 062170 | | | | | |
| T25RES | 056336 | T26S2 | 073142 | T27VCK | 104574 | T3.1 | 030222 | | T6.6 | 062746 | | | | | |
| T25RIB | 056043 | T26S3 | 073144 | T27WB | 102762 | T3.2 | 030574 | | T6.7 | 063610 | | | | | |
| T25RN | 055136 | T26TM | 074407 | T27WDC | 104521 | T3.3 | 031444 | | T6.8 | 064462 | | | | | |
| T25RT2 | 056430 | T26TRL | 075542 | T27WDD | 104431 | T3.4 | 032264 | | T6.9 | 065334 | | | | | |
| T25RT3 | 056472 | T26VCK | 075073 | T27WDE | 103572 | T3.5 | 032500 | | T7 | 076106 | G | | | | |
| T25RWN | 056125 | T26WB | 073132 | T27WDF | 103400 | T3.6 | 033046 | | T7.1 | 076146 | | | | | |

Symbol table

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T7.2    076544          WC.IOT= 000100          XORFOR  010102          XSOTMK= 100000          X2.RCE= 040000
T7.3    077326          WC.I1T= 000040          XSTO   = 000006 G        XSOVCK= 000020          X2.REV= 000077
T7.4    100150          WC.I5R= 000020          XST1   = 000010 G        XSOWLE= 004000          X2.SPA= 035400
T7.5    101052          WF.IED= 000010          XST2   = 000012 G        XSOWLK= 000004          X2.UNI= 000007
T8      106144 G        WF.IER= 000004          XST3   = 000014 G        XXCOMM  003112 G        X2.WCF= 002000
T8.1    106200          WF.IHI= 000200          XST4   = 000016 G        X$ALWA= 000000          X3.DCK= 000010
T8.2    106560          WF.IRE= 000040          XSOBOT= 000002           X$FALS= 000040          X3.MBZ= 000006
T8.3    107040          WF.IWF= 000020          XSOEOT= 000001           X$OFFS= 000400          X3.MDE= 177400
UAM   = 000200 G        WF.IWR= 000100          XSOIE  = 000040          X$TRUE= 000020          X3.OPI= 000100
UNITN   002172 G        WF.I3R= 000002          XSOILA= 000400           X1.COR= 020000          X3.REV= 000040
UNREC = 000006          WF.I4R= 000001          XSOILC= 001000           X1.DLT= 100000          X3.RIB= 000001
USI     004121          WRTCHR  010752 G        XSOLET= 020000           X1.MBZ= 017375          X3.SPA= 000200
WAITF   016340 G        WRTERR  005111          XSOMOT= 000200           X1.RBP= 000400          X3.TRF= 000020
WC.IFA= 000200          WRTMSG  005054          XSONEF= 002000           X1.SPA= 040000          X4.HSP= 100000
WC.IFE= 000002          WSMBK   022200 G        XSOONL= 000100           X1.UNC= 000002          X4.MBZ= 017400
WC.IGO= 000001          XFERAS  016030          XSOPED= 000010           X2.BUF= 000100          X4.RCE= 040000
WC.IRE= 000010          XNXM    016466          XSORLL= 010000           X2.EXT= 000200          X4.TSM= 020000
WC.IRW= 000004          XORBFO  007764          XSORLS= 040000           X2.OPM= 100000          X4.WRC= 000377

. ABS.  114404    000   (RW,I,GBL,ABS,OVR)
        000000    001   (RW,I,LCL,REL,CON)
ABS     000000    002   (RW,I,LCL,REL,CON)
Errors detected:  0

*** Assembler statistics


Work  file  reads: 322
Work  file writes: 308
Size of work file: 28912 Words  ( 113 Pages)
Size of core pool: 19714 Words  ( 75 Pages)
Operating  system: RSX-11M/PLUS (Under VAX/VMS)

Elapsed time: 00:14:25.40
CVTSCC,CVTSCC,=SVC/ML,CVTSCC
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